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ORIGINAL ARTICLES

PERSONAL OBSERVATIONS IN THE PATHOLOGICAL ANATOMY OF THE GALL-BLADDER AND BILIARY PASSAGES.*

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A rehash of text book pathology which might enlighten a medical school class would surely be out of place here. The gentlemen whom I am addressing are all of them in a position to read everything that is at my command, hence I cannot hope to add to the sum total of our common knowledge in any other way than by epitomizing my own recent observations on the manifestations of disease in the gall bladder and biliary passages.

In the course of a thousand autopsies which I performed some years ago, I noted carefully when gall-stones were found the conditions present in various parts of the body but find nothing in those notes that cannot be read in every text book on morbid anatomy, hence do not feel that I should be justified in taking up your time with a recital of the same.

The live issue of the present day is pathological anatomy as met with in the operating room, hence I have undertaken a critical study of the unusual conditions met in eighty-one recent consecutive cases operated upon by me. I have not confined myself strictly to cases in which gall stone disease was found but have included a few others which manifested very similar symptoms and which may be amenable to similar treatment.

Of these eighty-one patients, one was not operated upon and five were so treated secondarily, hence they will not be included in my classification. Four of these secondary procedures were undertaken for the relief of adhesions and in one a gastroenterostomy was done for obstruction due to the same cause. We have left then, seventy-five primary operations for our consideration.

Seventy per cent. of these patients were females, as might be expected. Apparently pregnancy is the determining factor in this direction. A woman who has borne several children is likely to acquire a

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relaxation of the abdominal wall which permits the liver to drop down and forward, kinking the biliary passages and producing stagnation; thus we have present one of the two factors without which gall stone formation is not possible, namely stagnation and infection. This will be referred to later. However, some of my patients were unmarried women who had never borne children. Thirty per cent. of them were men. Practically all adult ages were represented.

In 74 per cent. of my patients gall stones were present. Some might have expected them in 100 per cent. where the diagnosis was correct, however, it must be taken into consideration that the presence or absence of calculi in gall stone disease is really of secondary importance. They are merely one of the results of stagnation and infection of the biliary passages, just as are diseases of the gall bladder wall and adhesions; they may not form at all. The Mayos say (in a personal communication) that they are only seen in milder forms of disease but never produced in a very serious infection. I will not go further into the chemistry of this subject since it would take us to great lengths and you can read it in any text book.

In one of my cases there was a most interesting reason why no gall stones were present, namely, the man had passed them all and at the operation the gall bladder and duct while thickened and inflamed were empty. However, drainage cured permanently the symptoms which had persisted up to the time of the operation.

There has been the greatest variety in number and size of the stones which we have removed, from a single stone the size of a hen egg up to many hundred of the tiniest concretions, there has been an infinite variety. In addition to the ordinary pigment and amorphous cholestrin stones, I have removed one pure crystaline cholestrin concretion and one double stone, the larger portion of which consisted of these pure crystals while the rest was a mass principally of bile pigment.

The wall of the gall bladder was found to be diseased in 65 per cent. of these cases. In every instance but one this change was of an inflammatory nature, the single exception being cancerous. There were many distended bladders which are not referred to as diseased. Frequently this distension was so great and of such duration as to have caused considerable atrophy of the liver tissue in front of the offender. Many of these thickened, chronically inflamed gall bladders were so tightly wrapped in adhesions between liver, omentum, stomach, duodenum, colon and abdominal wall that it was with the greatest difficulty that the little sack could be found at all. These very gall bladders were in many instances greatly shrunken and retracted far back under the liver and in addition found to be extremely friable and otherwise hard to handle. In one instance the entire gall bladder was covered with fresh fibrin and itself gangrenous. This was, however, fortunately removed before rupture had taken place. In one instance a stone could be seen beneath the surface of the peritoneum covering the gall-bladder, having perforated

all the other coats. In two of these patients a complete perforation had taken place before the operation and stones were found free in the abdominal cavity. In one instance a very large solitary stone had perforated from the gall bladder through the wall of the duodenum and had passed a short distance down the small intestine which it had then completely obstructed. This patient with a history of twenty years of gall stone disease was operated upon after one week of obstructive symptoms, these constituting a perfectly new phase in an otherwise clear record of gall-stone disease. In several of these patients the mucous membrane of the gall bladder was so encrusted with calcareous material as to necessitate either its removal or the removal of the gall bladder in its entirety.

In accordance with the law of Curvoicier, I have with one single exception found the gall bladder contracted where there has been a stone in the common duct. As is well known this is due to the fact that a chronically inflamed bladder wall has the tendency to contract and this tendency becomes manifest whenever a portion of its contents is expelled, as for example after stones have slipped out into the common duct or intestine. In the one instance referred to I removed from the common duct the largest stone which has ever been recorded in this situation, measuring about four inches in length and nearly two inches in diameter. In spite of this the gall bladder was distended and tightly filled with many hundred smaller concretions.

In No. 23 of my series, in addition to stones in the thickened gall bladder, there was a nodule in the anterior surface of the liver about two inches away which resembled a metastatic cancer as frequently seen. The patient was a man of twenty-five but in spite of his age a bad prognosis was given; however, after more than a year his health is vastly better than before the operation, hence the gall bladder nodule can scarcely have been of a cancerous nature.

In No. 59 of this series a typical atrophic cirrhosis of the liver accompanied gall stone disease. No doubt they were perfectly independent processes running a parallel course, although we are well aware that in some instances infection of the biliary passages of the liver leads to an increase in connected tissue around them with consequent shrinkage of the same.

The cystic duct was obliterated in 16 per cent. of my cases. On the operating table it is very difficult to ascertain whether or not it is patent unless it be cut in two and actually studied outside the body.

The fact that bile does not appear in the gall bladder during the course of an operation is no evidence that it may not come later. Where drainage is needed, preparation should be made for it since bile may not appear for a week after the gall bladder is opened, as occurred in one of my cases. In another instance where the cystic duct was obliterated I found empyæma of the gall bladder which had resulted from a previous operation undertaken in the mistaken notion that gall stones

were present. In one patient hydrops of the gall bladder was present as a result of intermittent closure of the duct, due to the presence of a small stone which acted as a ball valve. This would allow bile to enter the bladder but none to escape and in consequence the well-known exchange of materials took place between the mucous membrane of the bladder and the bile which it contained, a gradual absorption of biliary salts and bile pigment going on while mucus was secreted in turn.

The common duct was obstructed in 25 per cent. of these cases, however, it must be taken into consideration that five of them were instances of cancer of the pancreas. When they are subtracted this leaves 18 per cent. in which the entrance of bile into the intestine was prevented by the presence of a stone. It may be said in general that the common duct dilates and its walls become thickened behind a stone. Such a duct should be regarded as suspicious especially in view of a history of jaundice. Obstruction of the common duct in 18 per cent. of my cases will show that this is much more common than one would suppose from the number of operations that are performed in which little attention is paid to it. In only one instance did I find a stone in the common duct with none in the gall bladder, although there is no reason why a small solitary stone might not pass down and obstruct this tube. In one undoubted case of stone in the common duct the patient was in so critical a condition at the operation that drainage was instituted and the obstruction in the duct left behind. She did beautifully for six months when she had a violent attack of colic, passed the stone in the duct and has been perfectly well ever since. Immediately after its passage her external fistula closed for the first time since the original operation. In another instance a stone in the common duct was pressed into the duodenum during the attempt at its removal, naturally with a perfect result. In the cases where the duodenum was obstructed by a tumor of the pancreas it may be stated with propriety that an anastomosis was made in one instance between the gall bladder and the duodenum, in another between the structure and the stomach, while in a third the stagnant bile was disposed of through an external fistula. A later number in this symposium will no doubt deal with the relative merits of these procedures.

In 4 per cent. of my cases pancreatitis was present. In two the immensely enlarged pancreas could be palpated before and after the abdomen was opened. In another operated upon only about a week ago a stinking fluid gushed out as soon as the abdomen was opened and areas of fat necrosis were seen in the neighborhood of the pancreas, explaining the origin of the fluid. The patient was exceedingly sick as might be imagined but is rapidly improving under the influence of drainage.

Pyloric adhesions were present in 29 per cent. of my patients and these I regard as being of more than passing interest. No doubt the stomach symptoms are in many of our patients explained by the

crippling which results from these adhesions. The organ cannot empty itself properly and dilates sometimes to a surprising extent. These are just the cases for acute post-operative dilatation of the stomach which we well know occurs with alarming frequency after operations for gall stone disease. In three such patients the obstruction was so complete that I had to do a gastroenterostomy for its relief, twice at the primary operation and once secondarily.

The appendix showed evidences of disease and was removed in 26 per cent. of my cases. This I consider to be a relatively high per cent. but can assure you that an examination of this member will probably result in quite similar statistics in the hands of all who take the trouble to examine it regularly. We never fail to look at it unless the patient's condition forbids or if infectious material will not be spread by so doing. In a few instances the appendix has been found full of pus, being no doubt a greater menace than the biliary region with its stones. In two instances I have seen gall stones in the appendix itself.

In 15 per cent. of my cases I found gall stones while operating for other diseases correctly diagnosed. I cannot give correct data regarding the number of these patients in whom the presence of gall stone disease had been suspected in advance but I must admit that quite a number were purely accidental findings. However, in every one I took occasion to go more deeply into the patient's history after the operation and must state the gall stone disease could have been diagnosed in every instance where they escaped attention. I am not a believer in the theory of gall stones remaining latent through a long life and producing no symptoms, it is simply a case of bad observation and worse diagnosis where the patient comes to autopsy and they are found though never suspected in life. If possible we always make a second incision after completing the original work in such a case, and attend to the gall bladder region at the primary operation if the patient's condition permits it. To give an idea of the extent of disease revealed by some of these operative procedures, I will relate a few of the manipulations which we have undertaken in addition to treating gall stone disease in the same patient at one operation.

Gastro-enterostomy for duodenal ulcer.

Excision of both tubes in pyo-salpynx.

Implantation of silver filigree in post-operative hernia.

Internal Alexander operation and appendectomy.

Removal of ovarian cyst and appendix.

Removal of right tube and ovary for tubo-ovarian abscess.

Appendectomy and implantation of filigree for post-operative hernia.

Appendectomy and Mayo over-lapping operation for abdominal hernia.

Hysterectomy for fibroid.

Appendectomy, removal of right intraligamentus cyst and left hydrosalpynx.

These complicated procedures are not to be considered as ill-advised; where a well trained operating personnel work together they are accomplished within the most conservative time limit. Only one of those which I have recorded took an hour.

In one instance, which is of extreme rarety, an abscess of the liver ruptured into branches of the hepatic ducts and was drained through the gall bladder. I simply cite the case as one of the unusual things which can come up in surgery of this kind.

One of our most interesting cases was in a woman of thirty-five, three months pregnant, who had a gall bladder full of stones and firm pyloric adhesions. She vomited constantly for several days preceding the operation but ceased immediately upon the emptying of the gall bladder. It is of interest to note that she did not abort.

One patient with a stone in the common duct coughed so much after the operation that on the eighth day the entire wound broke down and when I got to the hospital I found most of the small intestine and the omentum lying out on the abdominal wall. She was closed again with a number of through and through stutures and went on to perfect convalescence.

I have tried to depict faithfully a number of immediate and remote morbid conditions as they have presented themselves in eighty-one cases recently. There can be no better way to lay before the surgeon the difficulties which he is likely to encounter in work of this kind. In no department of surgery are greater demands made upon the judgment of the operator. I have merely called attention to the morbid pictures which are to be expected. Another speaker will show what a variety of therapeutic measures are here applicable. Success in this class of surgery is above all a matter of adapting the latter to the former. When the operator has learned to do this the surgery of the biliary passages resolves itself largely into a question of manual dexterity.

THE PROGNOSTIC VALUE OF BLOOD PRESSURE IN PULMONARY TUBERCULOSIS.—A. B. Marfan (*Rev. de médecine,* November, 1907).—In pulmonary tuberculosis the blood pressure is usually low. In those cases, however, in which it is high, we can make, according to Marfan's investigations, a good prognosis. Such a finding means that the tuberculous process is on the high-road to a clinical cure. He has found hardly any exceptions to this rule and believes that the behavior of the blood-pressure gives us our most trustworthy prognostic information in pulmonary tuberculosis. A very low blood-pressure is of ill omen and indicates a rapidly progressive infection. This rule has however more numerous exceptions than its converse; a low blood-pressure does not always exclude the possibility of a cure. In his blood-pressure work, Marfan used the Potain sphygmomanometer applied to the radial artery with the patient in the seated posture.—*(Interstate Medical Journal.)*

SYMPTOMS OF GALL STONE DISEASE.*

BY ROLAND HILL, M. D., C. M., ST. LOUIS, MO.

The symptoms of cholelithiasis present many distinctive characteristics as a result of inflammatory changes in the gall bladder itself, the ducts or in the surrounding structures. It is a well known fact, established by a large series of post mortem examinations, that many patients afflicted with this disease go through life without ever being conscious of their trouble, as the calculi simply lie inert in the gall bladder and never give rise to any symptoms whatsoever.

A careful estimate has shown that approximately one person out of every ten will present evidence of gall stone disease at post mortem examination, while during life it is probable that not more than 15 per cent. of those afflicted are conscious of their disease.

In elderly women gall stone disease is very prevalent and one extensive series of post mortem examinations showed calculi to be present in one case out of every four of those examined.

As gall stones differ greatly in size and in location, it is but natural that the symptoms arising from their presence will depend upon many different factors.

Thus stones in the gall bladder, or cystic duct, will give rise to a somewhat different class of symptoms from calculi of the same size in the common or hepatic duct.

Likewise cases attended with severe infection will vary greatly in character and danger from those associated with only the milder degrees of inflammation.

The ordinary, primary, classical attack of gall stone colic is caused by a calculus in the gall bladder passing down into the common duct, or duodenum, or attempting to pass through the cystic duct, and being regurgitated into the gall bladder.

In a case of this kind the patient is seized suddenly with the most intense pain in the epigastric, and right hypochondriac regions. This pain is of the most intolerable character, and often times produces a severe collapse. The patient sweats profusely and the surface of his body is cold and clammy. The pain is paroxysmal in character, and in an average case lasts from three to twelve hours.

It may cease suddenly as the result of the escape of the stone into the duodenum. The temperature is elevated to a slight or moderate degree. Reflex vomiting is usually present, and the vomited matter consists of the contents of the stomach and bile that has been regurgitated from the duodenum.

The region of the gall bladder becomes decidedly tender. This tenderness is particularly noticeable just below the cartilage of the ninth

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rib, or on a line between that point and the umbilicus. The liver may be swollen and tender, and if the cystic duct becomes obstructed the gall bladder may become enlarged so as to form a distinctly palpable tumor. During an attack of this character the pulse is small and feeble, but usually about normal in frequency. An examination of the blood may show a more or less marked leucocytosis depending upon the degree of inflammation that has been excited. Albumen or sugar may occasionally be found in the urine, as a result of the severe disturbance of the nervous system.

Indican as a rule is not present in the urine in gall stone disease. Bile pigment is, however, found in the urine in common duct cases before jaundice appears. These facts are of importance in distinguishing between obstruction of the common duct from gall stones and intestinal disturbances as appendicitis or intestinal obstruction. Where the calibre of the common duct becomes lessened as a result of inflammatory changes in the mucous membrane, or from calculi, the stools may be more or less clay colored, depending upon the degree of obstruction. Where stones have passed through the duodenum they may be recovered from fæces, thus making the diagnosis positive. Jaundice in many of these cases is not present, or only very slight. About 80 per cent. of all ordinary gall stone cases are free from jaundice, and it may be but slightly marked or even absent with stone present in the common duct.

The foregoing is a description of the symptoms of a characteristic typical attack of gall stone disease, but in a large proportion of the cases that come under observation the symptoms are anything but typical and tend to confuse our diagnosis. The majority of the less typical cases of cholelithiasis are chronic in character and present obscure symptoms, of which the most prominent is a so-called indigestion. This is due to a certain degree of inflammation of the gall bladder and ducts. In many of these cases stones will have become fixed in the cystic or common duct. At times cancerous changes supervene as the result of long continued irritation. It has been estimated that these malignant changes take place in approximately 4 per cent. of all of the cases of gall stones that have given rise to irritation.

In some acute cases the inflammation is so severe as to lead to pus formation with constitutional symptoms varying from a moderate pyrexia to a most pronounced septicaemia.

Pus cases occur where the intense pain will cease suddenly while the patient's condition becomes aggravated as a result of gangrene of the gall bladder.

In other cases a perforation of the gall bladder or ducts may lead to a general peritonitis, or to the formation of a fistulous opening between gall bladder and bowel. In these atypical cases where secondary changes have taken place, and other structures have become involved the diagnosis may at times be exceedingly difficult. The one constant symptom in these cases is usually associated with tenderness. This

pain may be either localized or referred. Localized pain is of a nature of a dull ache in the region of the gall bladder. If the pain is the result of impacted stone it is severe and prolonged. Tenderness in these cases is marked over the region of the gall bladder and also over the posterior surface of the liver. This posterior tenderness, if well defined, extends laterally from near the spines of the vertebra to the posterior axillary line, and vertically from the tenth dorsal to the first lumbar spine.

The referred pain usually present radiates to the scapular region of the right side, to the epigastric region; to the neck and down the arm.

In certain cases, especially with obstruction of the cystic duct a gall bladder becomes distended as a tumor and can be readily palpated. These patients are not usually markedly jaundiced. If the gall bladder becomes greatly distended, associated with a decided and rapidly increasing jaundice it is in a majority of cases due to pressure on the common duct from without; usually from malignant disease of the pancreas.

Cases of cholelithiasis with calculi in the common duct, while presenting many symptoms similar to those of involvement of the gall bladder and cystic duct still present certain distinctive characteristics that demand special mention.

Obstruction of the common duct from stone may be partial or it may be complete. It is more likely to be partial than complete, and may be due to one stone or to a number. Stone in this region usually gives rise to persisting jaundice of a more or less marked character. It is attended with pain diffused over a considerable area. This pain is liable to acute exacerbations, attended with rigors, nausea and vomiting, and usually an increase in the degree of the jaundice.

The temperature in these cases is quite characteristic; it will go suddenly to 103 or 104 and then quickly subside. At the time of an attack the liver is enlarged and tender. Bile in these cases of partial obstructions enters the duodenum in small quantities. This is decreased after a paroxysm, and its absence may be noted in the stools. These cases are attended with a good deal of emaciation and a great deal of gastric disturbance.

Gall stone disease with secondary chronic changes may be readily mistaken for a number of other conditions in this region that present symptoms of a similar character.

Gastric or duodenal ulcer may in certain cases so closely resemble gall disease that a diagnosis will be impossible. Usually, however, a diagnosis may be made by a careful study of time of attack in connection with the taking of food.

In gastric ulcer the pain comes on immediately after taking food and in duodenal ulcer an interval of about two hours will elapse until food begins to pass into the duodenum. Gall stone colic on the other hand comes on at more irregu[illegible] [illegible]ot so intimately asso-

ciated with the time at which nourishment is taken. The pain in gall stone disease is more definitely defined in the gall bladder area, and after an attack is over it may not occur again for a long period of time.

The pain in gastric ulcer is more defined in the region of the stomach and an examination of the stomach contents will usually show an excess of hydrochloric acid. In a small percentage of cases of gastric ulcer the patient will suffer from hemorrhages more or less severe.

Another lesion often mistaken for gall stone disease is appendicitis. This mistake is particularly liable to occur where the gall bladder is inflamed and distended down into the appendiceal region. In cases of this character we have elevated temperature, pain, rigidity, tenderness and swelling right at McBurney's point.

I saw a case of this kind only a few weeks ago in which an enormously distended leaking, gall bladder was mistaken for an appendiceal abscess.

To differentiate an enlarged gall bladder from an appendiceal abscess is not usually very difficult if the case is seen early, as the point of first appearance of swelling will show the gall bladder gradually distending downward from the liver to the appendiceal region, while in appendicitis the abscess forms primarily in this site. In certain cases where the appendix and gall bladder may have become adherent a diagnosis will usually be impossible.

Pathological conditions of the right kidney may closely simulate and be mistaken for an enlarged gall bladder.

In floating kidney the tumor may be felt in the gall bladder region, and by palpation we may determine its shape and consistence. As a rule a floating kidney can be pushed back into the position normally occupied by the kidney. Gall bladder enlargements on the other hand are more superficial and their mobility is controlled largely by the movements of the diaphragm. In some cases it is possible to distinguish an enlarged kidney behind a distended gall bladder.

Certain growths of the kidney may project forward in hepatic region in such a way as to make the diagnosis a matter of conjecture.

Chronic syphilitic inflammation and the gastric crises of tabes may give rise to symptoms so closely simulating hepatic colic that a differentiation can only be made by a most careful examination of the patient for signs of syphilitic infection. Cases of this kind have been operated upon by careful and capable surgeons.

Acute and chronic pancreatitis are often secondary to gall stone irritation and a differential diagnosis is impossible.

Ovarian cysts projecting upward in the hepatic region may at times very closely simulate an enlarged gall bladder. In a very recent case of my own the patient had a uterine fibroid and a large tender mass extending down from the liver to McBurney's point. This was giving a great deal of distress, and almost convinced me that I was dealing with an enlarged gall bladder. Operation, however, showed that the

mass was an ovarian cyst with twisted pedicle displaced by the fibroid upwards in the site of the gall bladder.

Malignant involvement of the pancreas may cause pressure upon the common duct and obstructive jaundice.

It varies from the jaundice of cholelithiasis in that it comes on gradually and generally painlessly, and will deepen from day to day until the skin is of a deep greenish yellow. The greenish tinge in these cases is quite easily distinguished from the golden yellow jaundice resulting from gall stone obstruction.

In the foregoing description of the symptomatology of cholelithiasis, I have endeavored within the limited time alloted, to give a succinct description of this disease, as well as a brief review of its differential diagnosis.

In conclusion, I wish to emphasize particularly the following points:

First: That this disease is much more prevalent than is commonly suspected.

Second: That one of its most common symptoms is a so-called indigestion or bilious attack associated with pain and tenderness in the epigastric and right hypochondriac regions.

Third: That the majority of cases of gall stones are not accompanied by jaundice.

Fourth: That cancer is believed to follow gall stone irritation in about 4 per cent. of all cases, giving rise alone to a mortality higher than early operative intervention.

Christian Science Cures.—Dr. Richard Cabot, in an article in the August *McClure's,* analyzes one hundred "Christian Science Cures." He does not discuss them from the point of view of logic or consistency, but by a study of the written testimonials and of his own experience, gained in the attempt to verify the claims of those who pronounce themselves cured. Summing up, he says:

"My conclusions are, first, that most Christian Science cures are probably genuine; but, second, that they are not the cures of organic diseases.

"In my own personal researches into Christian Science 'cures,' I have never found one in which there was any good evidence that cancer, consumption, or any other organic disease had been arrested or banished. The diagnosis was usually either made by the patient himself or was an interpretation at second or third hand of what a doctor was supposed to have said.

"As I have followed up the reported cures of cancer and other malignant tumors, I have found either that they were not tumors at all, or that they were assumed to be malignant without any microscopic examination. In other words, the diagnosis was never based upon any proper evidence."

SURGERY OF THE GALL BLADDER.*

BY T. E. POTTER, M. D., ST. JOSEPH, MO.

Operations upon the gall bladder are strictly American in origin, and that such operations are indicated for many troubles that were once thought to belong only to the internist, is no longer controverted.

When, on pressure over the abdomen, we discover extreme tenderness on the right side, in the neighborhood of the ninth costal cartilage, with or without tumor, associated with dyspepsia, with a morose, depressed and sluggish condition of the patient mentally, and there are occasional chills followed by fever, which appear with no regularity and with a jaundice once in a while, we assert, an exploratory incision is a justifiable procedure on the part of the surgeon, whether the absolute pathology can be made out or not. These symptoms, if they last, show that conditions exist which should be corrected, and the truth, as it is, can be revealed only by the use of the knife.

The exploratory incision, made under strictly antiseptic precautions, is associated with little, if any danger, and in the event that nothing of a pathological nature is found, the surgeon has committed no crime; but with the symptoms above enumerated, he will rarely, if ever, find that he has made a mistake.

Within the last year I had a patient present herself at my office with a severe stomach trouble, associated with tenderness on pressure, in the region of the right costal cartilage. There was extreme debility, no tumor or history of colic. She vomited a great deal, and just before consulting me, she had vomited blood. I made an exploratory incision and found the fundus of the gall bladder adherent to the duodenum and omentum. I separated it from the parts to which it was adhered, brought it forward, made ventral fixation, opened it and found no stones, but a granular catarrhal condition. In connection with the bile and mucus which made up the bladder contents, there were streaks of pus. I drained it several weeks, when the fistula closed itself. The patient recovered entirely, and does her own work to-day; something she had not been able to do without great suffering for several years.

In operating upon the gall bladder for any suspected trouble, the first thing to consider is a perfect technique:

1. The patient should be thoroughly prepared and from 24 to 48 hours taken for this purpose.

2. When upon the operating table and anesthetized, a good sized sand bag should be placed up under the lower portion of the thorax, so as to throw the base of the liver fully into view when the opening in the abdomen is made.

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3. The point of the incision, as well as the character of the same, should be well considered. The upper portion of the lineæ semilunares, and the skin in the neighborhood of the same, should be thoroughly painted with tincture of iodine, completing the last preparation, in order to destroy as far as possible, the pyogenes epidermis albus, which is so difficult to rid the skin of and which so frequently causes most dangerous and troublesome stitch abscesses in any kind of abdominal section.

The character of incision is of importance and the one suggested by Bevan of Chicago, which is made something like the italic letter *"f"* is to be preferred. The incision should be from four to five inches in length. The upper portion should begin within a short distance of the linea alba, pass obliquely to the right lineæ semilunares, then a straight incision down along this line by the side of the rectus muscle for four or five inches, then at the lower portion the incision should pass to the right transversely for 1½ to 2 inches. When this kind of incision is made, the operator, after all hemorrhage is stopped, has a perfect view of the region of the bladder, and has a good opening through which to make his examination and do his work. The first thing for the operator to do now is to open the wound well with retractors and examine the conditions. Adhesions, hydrops, empyema, stones, ulceration, malignancy, contraction and elongation of the gall bladder must all be in mind and he should be able to recognize at a glance whatever conditions present themselves. His judgment as to his mode of procedure will have to date largely from this period in his operation. If stones of moderate size or a simple cholecystitis without complications are made out, in either case, a simple ventral fixation is all that is necessary. The bladder can be brought forward into the wound with hemostats or by introducing into the fundus two ligatures as anchors. Then the wound in the abdomen is closed up to the bladder above and below. The parietal layer of the abdominal peritoneum is attached to the peritoneum of the gall bladder with a continuous or interrupted catgut suture. Packing should be well placed in the wound, and around the bladder, so that when the incision is made for opening up the gall bladder no infection from the escape of the contents will take place. After this is opened and the bladder well emptied, the edges of the bladder should be cut off so that no part of it rises above the skin. All hemorrhage should be stopped, then a purse string suture of catgut must be used to close the opening, around a rubber drainage tube without openings in its sides. The tube should reach down as far as the cystic duct. This will give better drainage from the bottom. The anchors should be placed in the muscles and the skin allowed to rise above the edges of the fixed portion of the bladder. By doing this, the skin, when the surgeon removes the tube will soon close over the fistula, if he desires it to do so.

The custom some surgeons have of waiting a few days after the bladder is fixed into the wound in order that adhesions may take place between the gall bladder and abdominal peritoneum before opening it,

is unnecessary, if his technique has been good before operating. If he delay, the patient is kept in an agitated condition until the operation is completed, and further, when the operator opens the viscus, he may find a stone in the cystic duct, which may require his hand in the abdomen to remove, either by pressing it back into the bladder or by crushing it between his fingers; or he may have to go further and open the duct and remove the stone before he completely closes the wound. So we believe it is better to complete the operation at once whatever its character may be.

If the surgeon should find no stones or no evidence of diseased gall bladder, but simply adhesions between the bladder and some viscera, he can separate these adhesions, and in some instances in doing so, this will remove the peritoneum from the bladder. This should be corrected by bringing the torn edges of the peritoneum together with a continuous suture of a No. 00 or No. 0 catgut. This will in many instances shorten the bladder and make it look very much smaller than before the separation takes place.

The next question to consider is the removal of the gall bladder or cholecystectomy. In cases where the pathology is so extensive that it is impossible to save the gall bladder by ventral fixation, or where it is so contracted that it cannot be attached to the abdominal wall, or where there is malignancy of the bladder, which malignant condition demands its entire removal, cholecystectomy is a justifiable operation; but it is associated with far more danger than the simple operation of attaching the bladder to the abdomen and draining same. The preservation of the gall bladder or any portion of it, is of value.

It may be argued that patients live and seem to do well without any gall bladder. In my own work I have such results, as several of my patients are living whose entire gall bladders have been removed; and so far as I can see, they are enjoying good health, but where there has been occasion for opening the abdomen after this operation has been made, it has been found, in many instances, that a small bladder has formed, due to expansion of the cystic duct at the point of expansion, showing that there is a greater necessity for the existence of this bladder than we suppose and that, if removed, nature tries to reproduce it. It is claimed by some that if the diseased bladder is only fixed and drained, then when the fistula closes, stones are as liable to re-form, as they were formed originally. I have never had this occur, and I have seen only one case so fixed and drained that contained a stone, and this was a distended gall bladder that had been mistaken for hydronephrosis, and when the surgeon found his mistake he removed the contents of the bladder and attached the fundus in the incision, and I am of the opinion that this stone had been left in the gall bladder. We were several months afterward called upon to assist in removing this entire gall bladder and the patient has since enjoyed perfect health. To tell just when the entire gall bladder should be removed requires a good clever

thinker. In making this operation the surgeon should separate with his finger or a blunt dissector the peritoneal fold that which holds the gall bladder to the liver, after this is done and hemorrhage stopped, he should close the neck of the bladder with a clamp, not too close to the important blood vessels, tie well just below the clamp with linen or silk, the former to be preferred, then clamp securely higher upon the bladder, so that when severed, the contents will be held in the sack, cutting the organ off with a pair of blunt-pointed scissors between the clamps. If the fold of peritoneum which holds the gall bladder to the liver has not been entirely separated when the gall bladder is cut off, this can be completed.

The stump should be touched with carbolic acid then alcohol, and if possible the peritoneum brought over this part in order to completely cover it and it should be supported by a fold of omentum. A good sized drainage tube should be placed down to this so if there should be hemorrhage or escape of bile, there will be no trouble in draining it off.

Cholecystenterostomy—anastomosis between the gall bladder and intestines, preferably the duodenum, in cases of malignant obstruction—should be made with the Murphy button. If it cannot be made to the duodenum, it should be made with the transverse colon.

DISCUSSION.

Dr. J. F. Binnie, Kansas City: I think some of the essayists have been under the same misapprehension regarding Bevan's which I was under until recently. It is not a plain S-shaped incision; it is primarily vertical through the rectus muscle. If this does not give enough room, an upper and lower, more or less horizontal, cut should be added to it. Use the vertical incision alone if that gives enough room. Diabetes has been given as a positive contraindication to operation. I am free to say that I believe it may be an indication. Drainage of the gall bladder may, in some instances, aid in the treatment of diabetes. In emergency cases, where the patient is greatly jaundiced and greatly infected, even though the circumstances are not such as to be most favorable for good surgical work, it is best to operate. Cut down on the gall bladder, drain it and open up any pus collections, putting in a drain. Afterwards, under more favorable conditions, do a second operation. Under some conditions a complete operation at one sitting is life destroying. Suppose one has an old patient, much jaundiced, with a large gall bladder,—it may be cancer. In such a case it is one's duty either to make a fistula and let the bile escape externally, or do a cholecystenterostomy. I mention that particularly because I had that experience with a woman eighty years of age; her life was saved until she died from another cause, the original disease, however, being cancer.

Dr. J. D. Griffith, Kansas City: I wish to say that I have used the preparation mentioned by Dr. Halley in a case where I suspected

cholelithiasis. I am not certain about it curing but they seem to get along well.

Dr. Gordon A. Beedle, Kansas City: We are taking a great deal of responsibility upon ourselves as surgeons when we discuss purely the mechanical surgical relief as a cure for gall stone disease, and give no attention to the equally important medical attention these cases demand; of the greatest importance is the able internist, the surgeon, while of vast importance, lends only the mechanical assistance. The stone production is a result not the disease, as we all know, the recognized facts,—venous congestion of the portal circulation from various causes, furnishing the foundation in the majority of cases. Bile stasis with slow infection in the ducts or bladder, favor chemical changes and stones are produced.

I believe that the gall bladder is removed oftener than is necessary; we should avoid that, if possible, because the gall bladder has an important anatomical function. It is ridiculous to think that a patient can get along as well without it as with it; in addition to being a reservoir for the bile, it regulates the stream of bile thrown into the duodenum, by bulb-like tension through its elastic walls. Nature intended it to perform that function, and when you can preserve it you should do so.

Dr. Wm. A. Shelton, Kansas City: I believe that in the great majority of instances, an operation must be resorted to unless the patient is fortunate or unfortunate enough to die of some other disease before it progresses far enough to be that serious. Etiologically it seems to be a secondary condition. There are other etiological factors which must be considered. First, infection, which is apt to produce an extensive infection in the liver. Then there is the factor of resistance of the liver or efficiency of the liver in destroying the infection so the patient may not get gall stones. The third factor is stasis mentioned in the first paper. These factors are of the greatest importance, and must be considered. I do not think the operative treatment of the condition is all there is to it. While the operation is all right I think we should look into other matters and if the liver is not capable of doing the work that is thrown on it, we should work to relieve that condition. Try to relieve the liver of as much work as you can. I do not believe that the duty of the surgeon ceases when he has operated. There is something more than the operation. You must look into the other conditions. Appendicitis has been recognized as frequently existing in conjunction with gall bladder disease. If you operate upon the condition and not upon the cause the results will not be as good as if you take all the factors into consideration.

Dr. C. H. Wallace, St. Joseph: In July, 1905, I did a cholecystectomy on a woman 43 years of age. A cigarette drain was attached to the excised cystic duct. There was a discharge of bile for about one month when the sinus closed. The stools were clay colored during the discharge period. Following the closure of the sinus was a continuation of the clay

stools, accompanied by chills every few days. Patient became mildly jaundiced. She returned for a second operation in March, 1906. Upon exposure of the common duct, at this time, it was found almost completely torn across, joined only on posterior surface. It not being possible to anastomose duct with bowel, on account of the dense adhesion, the edges in the torn duct were freshened and the duct virtually anastomosed with itself. Cigarette drain was placed at the side of the closure and the abdominal wound closed. Convalescence was favorable with free discharge of bile from the drain. There was also passage of bile into bowel, indicated by return of stools to normal color. Jaundice rapidly disappeared. Sinus continued to discharge small quantities of bile-stained mucus for three months and then closed. General health since has been good. I mention this case as being somewhat unique. If the common duct has ever been anastomosed with itself I have been unable to find report of such case.

Dr. Jesse S. Myer, St. Louis: Such papers might well be read with profit before the Medical Section of this Association. As a rule these cases do not come into the hands of the surgeon until the diagnosis is fairly definite and often not until complications have arisen. There is probably no condition more often overlooked by the internist and clinician because of the fact that the symptoms are often misinterpreted as due to primary gastric disturbances. In my opinion as soon as the diagnosis of gall stones is made, the case becomes a surgical one. I deem it best to dispose of the gall stones first because of the serious complications that may arise from procrastination and then to look to the treatment of conditions that may have resulted in the formation of the concretion. Whenever dyspeptics are met with, who have suffered for a long period of years without relief by rational medical treatment and the careful examination of the stomach reveals no disturbance either in the motility or the secretions, it is well to consider at once the possibility of gall stones as the primary disturbance. It is sometimes difficult to differentiate cholelithiasis from ulcer of the duodenum, ulcer of the stomach, appendicitis and stone in the kidney, but I have found that a careful history of the case, careful observation for at least a short period of time, the examination of the stomach contents and feces will enable one, as a rule, to arrive at a definite diagnosis. When symptoms characteristic of gall stones or one of the above named conditions exist persistently, and a positive diagnosis is not possible, exploratory operation should be resorted to. All that the internist can hope to accomplish in the treatment of gall stones is the relief of the symptoms and not a cure. In view of the serious complications that may arise when we least expect them, such as perforation of the gall bladder, common duct obstruction, carcinoma, etc., the earlier the concretions are removed, the better.

Dr. Potter, in closing: One point in regard to symptoms, which I mentioned in my paper, that I should like to emphasize is, that the

symptoms of gall stone disease are not always the same. We may have stones in the bladder and not have a particle of jaundice. I have seen many instances where this was the case. One was that of a man who weighed 220 pounds, who became emaciated, heart very much exhausted, suffered from angina pectoris. I found a little tenderness in the region of the right hypogastrium. He told me that he occasionally vomited and thus found relief. These were all the symptoms present that I thought pointed in the direction of stones in the gall bladder. I told him that I thought he had such a trouble and he hooted at the idea, and left when I advised an exploratory incision. Two weeks after he became jaundiced. Up to that time he had never had any symptoms of jaundice. We operated and took out two large stones.

Dr. Joseph McDowell, founder of the McDowell Medical College in St. Louis, and a firm believer in ghosts, tells an interesting story:

"A German girl died with a very unusual disease, and we determined to get her body for dissection. We dug it up and laid it in the college; but the Germans heard of it and made things lively, and I heard they were coming that night to search for the body. I went down to hide it and threw it over my shoulder to carry it to the top loft to conceal it in the rafters. At the top of the first flight, out went my lamp. I put down the corpse and re-lighted it. Out again, and as I felt for another match I saw my dead mother standing a little way off and beckoning to me. I followed to the left, hid the body and came down in the dark. At the window where my mother had appeared were two armed Germans, talking, and when I got to the dissecting room door I saw six more down in the hall. My only chance of hiding was in the dissecting room. Opening the door as the Germans came upstairs, I saw my mother standing by the table from which I had taken the corpse. I had no light, but light came from her. I lay down and covered my face with the sheet and the men came in. They uncovered four bodies and came to me. I thought of jumping up and scaring them, but heard a voice say, 'Be still, be still.' They were looking for a girl, and my feet were sticking out at the end of the table. 'Here's a fellow who died in his boots; I guess he is a fresh one,' said a German; and they did not even uncover my face, but left the house."—(Excerpt from "The Barred Road to Anatomy," by Howard A. Kelley, M. D., *Johns Hopkins Hospital Bulletin.)*

EXAMINATIONS OF THE FECES AS A ROUTINE PROCEDURE.*

By Jesse S. Myer, M. D., of St. Louis, Mo.

Today the clinical laboratory does not present a more interesting chapter nor a more fertile field for work than the examination of the feces. As a routine procedure this work has taken its place in the same rank with the examinations of the urine, stomach contents and blood. In many diseases of the gastrointestinal tract, as well as certain diseases manifesting themselves only in constitutional symptoms, an absolute diagnosis is often impossible without the examination of the feces. It is true that this work has not become as popular, and is not as universally done as are the examinations of other excretions, and in private practice will probably never be so, because of the unpleasant duty on the part of the patient of collecting the specimens and the unpleasant features in the examination. The work cannot be done satisfactorily on the "little table in the corner" because of the unpleasant odor. For this reason, as well as because of the specialized knowledge required, the work will in all probability always be done by those especially prepared for it, both as to laboratory facilities and experience.

Personally, I can say that the satisfactory results derived from a study and practice of the examination of the feces rob the procedure of practically all of its unpleasant features. The intestines are unfortunately so situated and constructed that the physical examination yields but little that is positive, excepting, of course, in case of tumefactions, stenoses and localized inflammations. In the diffuse affections of the intestines, the physical examination reveals practically nothing aside from the usual areas of tenderness. The character of symptoms produced by the various diseases of the intestines are so similar in nature that we are justified in saying that there are no pathognomic signs of certain pathological lesions. The previous history, while helpful in arriving at a diagnosis, does not make possible a positive diagnosis except in isolated cases.

Until the introduction of the stomach tube and the test meal, within the past two decades, the diagnosis of gastric disturbances was, for the same reasons, not reduced to a science as it is at the present time. Since the development of this art, the examination of the stomach contents has become a general practice among physicians who have the time and inclination to call to their aid laboratory findings in the diagnosis of gastric disturbances. No one can dispute the great value that is attached to these examinations. The diagnoses of intes-

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tinal diseases are quite as amenable to laboratory interpretation, and yet only during the last decade has the subject received anything like its merited attention and then only from a few laboratory workers and specialists in gastrointestinal diseases. While it is a fact that experience and persistence are of the greatest importance in the development of thorough knowledge of the technique, nevertheless with reasonable powers of observation and even a meagre knowledge of microscopy and chemistry, much can be accomplished. Because of the great variety of substances ingested and consequently excreted in the feces, the work presents a most fertile field for misinterpretation. Therefore, repetition, persistence and careful observation are the chief requisites.

The objects of the examination of the feces may be said to be threefold, namely: (1) The diagnosis of diseases manifesting themselves through symptoms on the part of the gastrointestinal tract in the largest sense of the term, including therein the stomach, intestines, liver and pancreas. Among these symptoms may be named diarrhea, dysentery, colics, constipation, mucus and blood in the stools, etc. (2) Certain obscure constitutional diseases (pernicious and secondary anemias, convulsions in children and certain nervous manifestations, etc.,) in which there may or may not be accompanying symptoms on the part of the gastrointestinal tract. (3) The functional determinations of gastrointestinal digestion.

It shall not be within the scope of this paper to enter into the discussion of the details of technique of examinations of the feces, for this would involve, depending upon the point to which these analyses are carried, the most intricate problems of chemistry and bacteriology. In the ordinary routine work, these are not required any more than are the examinations for indican, acetone, the diazo reaction, etc., in the routine examinations of the urine.

In order to draw deductions from the microscopic examination, which is by no means the least important part of the examinations, the stool should be obtained in as fresh and undisturbed a state as possible. It should be inspected in a fresh state, because upon standing the surface of the stool becomes darker through the further oxidation of the coloring matter, and also because of the destruction of the motility of certain parasites, such as the ameba coli, etc. The stools should be passed if possible into the very vessel in which it is brought to the laboratory, (a Mason jar will suffice) in order that blood, mucus, etc., may be observed in its relation to the entire mass of feces. In the inspection of the feces, there must be taken into account the amount, consistency, color, odor and the presence of macroscopical particles. As to the amount of feces passed in twenty-four hours, but little need be said, for this varies with the quantity and quality of food ingested. One partaking freely of proteids, such as meat, eggs, etc., which leave but little residue, will necessarily pass a smaller, harder, darker stool than

one eating freely of carbohydrates, in the form of potato, spinach, asparagus, and the green vegetables in general. These substances leave a large residue of cellulose. For this reason the season of the year may greatly influence the size of the daily passages, the stools being larger in summer, when one eats freely of fruits, berries and green vegetables. Copious, infrequent stools point, as a rule, to the existence of a disturbance in the upper portion of the intestine, while meagre, frequent stools point to the existence of the trouble in the lower portion of the intestine. While one or two fairly copious stools daily may be considered the normal state, there are many cases on record in which individuals, in a perfect state of health, are uncomfortable without three or four actions daily; while on the other hand there are certain individuals who find that they feel best when having but one action a week. These, however, are exceptions to the general rule.

The normal consistency of the feces, while difficult to describe in words, is a point to which physicians have called attention for many decades as an indication of the state of the intestinal tract. The stool should be of such a consistency as to maintain its form after being passed without, however, retaining the imprints of the haustræ. A liquid stool is always abnormal if not produced by a cathartic. The normal stool then should be a soft, cylindrical mass or form in the vessel a cone-shaped or pyramidal mass. Hard scybalæ indicate a prolonged retention in the colon, for it is in the colon that the water is extracted from the intestinal contents. A diarrheic stool indicates an increased peristalsis on the part of the colon alone, or the small intestine and colon. The contents enter the colon in a fluid state and, therefore, if hastened through the colon are expelled in this state.

The color of the feces is usually dark brown, due to the end results of bilirubin oxidation to hydrobilirubin. In total absence of the bilirubin from the intestinal tract, as in cases of complete obstruction of the common duct, the stool has an ashen gray or clay color. A number of variations in the color of the normal stool may be produced by the character of food eaten; if meat predominates the color will be a dark brown; if vegetables, a light brown; if milk, a light or orange yellow; and if fat, a grayish yellow color. Vegetables containing iron,—such as spinach,—give a darker color to the feces. The influence of the various drugs upon the color of the feces is well known. Heavy metal salts, such as bismuth subnitrate, iron preparations, etc., produce a black color as a result of their conversion to bismuth or iron oxydul. In these cases the microscopic examination shows the color to be due to rhomboid-shaped black crystals. Charcoal also gives a black color to the stool and is found in the feces microscopically as amorphous black masses. Therefore before venturing a diagnosis as to the presence of blood in the stools, the patient should be carefully questioned both with reference to drugs and food taken in the previous forty-eight hours. These factors have often led to the mistake of suspecting blood, which

gives a similar color to the stool. Depending upon the amount of blood present and the source of its origin, the feces may vary from a very dark brown to an inky black, due to the conversion of hemaglobin to hematin. If the stool appears black in color, due to blood, it indicates that the blood has been in the intestine for a considerable time, hence, comes from the upper part of the gastrointestinal tract, as, for instance, in ulcer of the stomach and duodenum. If, on the other hand, the blood comes from the lower portion of the tract, it is more apt to appear in the fresh state, giving to the stool a reddish brown color. While this is the rule, it is not infallible, for it must be remembered that blood coming from the small intestines may be carried through so rapidly as to appear in the fresh state, and on the other hand, blood coming from the colon may remain there so long as to be changed in the colon. However, if the stool is black through and through and is passed in a formed state, we may conclude that it was completely admixed with the feces while still in a liquid state, and inasmuch as the feces begins to harden in the colon, such an admixture must have taken place in or above the cecum. Fresh blood intimately admixed with the feces occurs only in liquid stools and usually comes from the colon. If the stool is formed, fresh blood is not found thoroughly admixed with it, for reasons that are evident. A few drops of fresh blood passed immediately after, hence on top of the stool, come invariably from the rectum (hemorrhoids, fissures, etc.), and the same may be said of a drop or few drops immediately preceding the stool. Blood adhering to the surface of scybalous masses come usually from a point below the splenic flexure of the colon, most often from the sigmoid, because it is here that the formed stool takes on the shape of the haustræ.

In my experience these same rules may be applied to mucus in the stools. Small bits of mucus intimately admixed with liquid feces usually come from the small intestine, while the larger masses not intimately admixed with the feces usually come from the colon. Much depends upon the length of time that was required for a given stool to be expelled, as to character of mucus found. It has been maintained by some authorities that mucus from the small intestine is practically never found in the feces, having been dissolved in its transit. Mucus on the external surface of scybalæ comes from the lower portion of the colon, almost invariably the sigmoid or upper portion of the rectum. Small quantities of jelly-like mucus passed just before or just after the stool, come from the sigmoid or rectum.

After the stool has been inspected with reference to the qualities just described, a portion should be set aside for microscopic and any chemical examinations that may be indicated. The remainder is washed through a specially designed sieve, and the large particles remaining on the sieve are examined with reference to (1) food remnants, (2) parasites, (3) concretions, (4) foreign bodies. There occur in the feces of practically every individual partaking of a mixed diet,

a certain amount of food residue, which varies in amount according to the quantity and character of food eaten. The greater the amount of vegetables, the greater the residue. This is due to the fact that practically all vegetables contain a greater or less amount of cellulose, which is practically indigestible in the human intestine. The vegetable residue that is to be found in any stool depends upon three factors: (1) The amount and character of the cellulose present (capsules of peas, and beans, the fibro-vascular bundles in celery and the stalks of vegetables generally, the seeds of berries and fruits, etc.). (2) The mode of preparation of the food (as to whether raw or cooked, strained or unstrained, etc.). (3) Degree of mastication.

There is no doubt but that much of the indigestion, gastric and intestinal, is due to the poor preparation and to the rapid bolting of food. It is amazing at times to note the large amount of undigested residue which may be found in the washings of the feces, not only of children, but of unthinking adults as well. Large quanties of raw fruits with seeds, the stalks of vegetables, peas, beans, corn, etc., are swallowed without being properly masticated, and often without being properly cooked, and as a result are found practically unchanged in the feces. I have often found a demonstration of this sort a splendid object lesson to patients and have thus often succeeded in getting them to correct their habits by showing to them the probable cause of much of their indigestion. I could cite a number of cases in which a change in the character of food and habits have completely corrected the existing gastro-intestinal disturbances. Unless meat is swallowed in large portions, it is rarely found in the stool of a healthy individual, excepting as microscopical remnants of muscle fibres. Even a large bolus of meat is usually broken up before it is evacuated with the feces. However, in cases where diarrhea already exists, meat may be found in the feces in a practically undigested state. Schmidt has shown that the fibrous tissue is digested in the stomach, while the muscle fibres are largely digested in the intestine. Therefore, a poor digestion of fibrous tissue indicates a gastric disturbance, while the poor digestion of the muscle fibre indicates an intestinal indigestion; a poor digestion of both indicates a disturbance in the stomach and intestines.

Not infrequently intestinal parasites, or portions thereof, are found in the coarse washings. The parasites which we most frequently meet in this section are tænia saginata and tænia solium, or tapeworms obtained from eating raw beef and pork, respectively, ascaris lumbricoides, or ordinary round worm, the oxyuris vermicularis, or pin worm. In the last decade another parasite has been added to those sometimes met with even in this state, namely, ankylostomum duodenale or hook worm. This is essentially a tropical disease, which of late years has migrated to this country, and not infrequently cases are reported in various sections of the United States, especially in the Southern States. The worms, however, are not themselves usually discovered in

the feces, but are detected by the presence of the eggs, of which I shall have occasion to speak later. Often the first evidence that one has of the existence of parasites is in the discovery of segments of the tape-worm, of the male or female ascaris, or of large numbers of the oxyuris. These are practically the only parasites that we meet with in this section visible to the naked eye, and the diagnosis may be promptly made upon discovering portions or the whole parasite.

The concretions that may be met with in the washings of the feces are gall stones, fecal concretions and fatty acid concretions. Gall stones are often searched for after acute attacks of colic in which cholelithiasis is suspected. In such cases the feces should be examined for a period of at least seventy-two hours following the attacks. While the inability to find the concretion in the stool does not exclude the existence of gall stones, the positive finding absolutely confirms the diagnosis. When a gall stone passes through the common duct into the duodenum, it is usually found intact in the feces, though it has been shown, especially in experiments upon animals, that they are sometimes crushed and destroyed in their passage through the bowels. Fatty acid concretions, so often found in the feces in those ingesting large amounts of oil, especially olive oil, have led to the employment of this method by quacks to deceive the layman. Persons afflicted with paroxysmal attacks of pain in the abdomen are given large quantities of olive oil, some of which the intestine is incapable of assimilating and absorbing, and is, therefore, expelled in the form of fatty acid concretions. These concretions, are sometimes passed by the handful and are demonstrated to the patient as the sought-for gall stones. If one is in doubt as to the character of a concretion, i. e. whether it is a fatty acid, fecal concretion, or a gall stone, a section through it will usually enable one to say definitely to which class it belongs. If there is still doubt, the concretion may be dropped into ether, which, in the case of a fecal concretion, will have no effect at all; but in the case of fatty acid concretions or gall stones, will dissolve them. After the evaporation of the filtered ether, cholesterin will be left behind as a precipitate if the concretion is a gall stone, while only fat droplets will remain in the case of a fatty acid concretion. Fecal concretions may be at times so hard as to greatly resemble gall stones in appearance and structure. In this case the chemical test will very quickly clear up the diagnosis.

It would be impossible to include within the scope of this paper the details of the chemical, microscopic and bacteriological examination of the feces. The microscopic examination presents by far the most interesting phase of the subject, because of the great variety of vegetable cells and other morphotic elements. Through the aid of the microscope one recognizes the microscopic varieties of intestinal parasites, which escape, of course, the macroscopic examination. Among these may be included ameba coli, with which we now meet not infrequently in this state. Since the Spanish-American war, especially, a number of cases have been reported. Formerly the

disease was essentially a tropical disease and found only in seaport towns in this country, but in the last ten years especially cases have been reported from practically every section of the country and as far north as Michigan. It was my opportunity to report one of the first cases, if not the first case officially reported in this state, in 1900. The moving amebæ are to be found in the sanguinous mucus on a slightly warmed stage. An absolute diagnosis cannot be definitely made unless they are found in motion. Among other unicellular organisms found in the feces may be mentioned the cercomomas intestinalis, the trichomomas intestinalis, the lamblia intestinalis, etc. These have no recognized pathological significance and need only be mentioned in passing.

The eggs of the various parasites may be recognized in the microscopical examination of the feces and thus a definite diagnosis of the presence of the worm made. Only recently a case came into my hands in which I was able to make a diagnosis of double intestinal parasitism (trichocephalus dispar and ascaris lumbricoides) through the presence of the eggs. In hook worm disease, the worm itself is rarely found, and the diagnosis can only be definitely made on the demonstration of the eggs, which are quite characteristic. It is scarcely possible to make a differential diagnosis, from the appearance of the eggs alone, between the tænia solium and tænia saginata. But, with this exception, there is little resemblance between the eggs of the various intestinal parasites. Upon finding the eggs, therefore, the character of the parasites present may be readily determined. Great care is necessary not to confound the eggs with remnants of vegetable cells, which to the unpracticed eye may appear very similar. Plant hairs, plant spirals, various forms of vegetable cells, epithelial cells, blood corpuscles, leucocytes, various bacteria, fungi, etc., all play a role in the microscopical examination of the feces. Among the crystals found may be mentioned fatty acid, oxalate of calcium, ammonio-magnesium-phosphate, and the Charcot-Leyden crystals. It will be impossible here to dilate upon the significance of the microscopical findings of all of these morphotic elements, and one cannot hope in the allotted time to do more than call attention to them.

The test diet of Schmidt and Strassburger has received much attention during the past few years from those engaged in this sort of work. A diet of known consistency is administered to the patient for several days and the feces examined as heretofore stated, with reference to food remnants, the stage of digestion, the presence of fibrous tissue (indicating a deranged gastric digestion), undigested muscle fibres (indicating a deranged intestinal digestion), the presence of fats, fermentation, bilirubin oxidation, etc. Too much credit cannot be accorded them for the character of their work. Their test diet will occupy the same position with reference to the examination of the feces, that the test meal does in the examination of the stomach contents, and promises just as satisfactory results.

In reviewing the significance of blood in the feces, I purposely omitted until this time reference to the presence of traces of blood in the stool, which do not manifest themselves microscopically or macroscopically. When a very small quantity of blood is present in the stool and has been completely broken up, its presence can only be determined through chemical tests. The presence of minute quantities of blood has been called "occult hemorrhage" and may come from bleeding vessels or the surfaces of denuded areas anywhere along the gastrointestinal tract from the mouth to the rectum. In all cases, therefore, in which ulcer of the stomach, cancer of the stomach, ulcer of the duodenum, or other portions of the small or large intestine, and carcinoma of the intestine are suspected, no examination of the feces is complete without a chemical test for blood by the guaiac-turpentine or benzidine tests. In order to exclude the possibility of the patients having ingested anything containing blood pigments, such as meats, broths, etc., they should be put on a diet free from these substances for two or three days prior to the examination. The mouth should be carefully examined to exclude the possibility of minute quantities of blood having been swallowed, and the rectum to exclude the possibility of hemorrhoids, fissures, etc., (in which case the blood would be seen macroscopically). With these precautions, the finding of a positive trace of blood in the feces, together with the symptomatology and physical findings enable one to arrive definitely at a diagnosis of ulcer or carcinoma, which might otherwise remain in doubt.

The determination of traces of blood in the feces by the guaiac-turpentine and benzidine tests, recommended by Weber and the Adlers respectively, and perfected by Boas, Schlesinger and Holst, and others, has proven one of the most valuable aids, in the diagnosis and differential diagnosis of gastrointestinal diseases, that has come to us in the last decade.

In presenting this résumé of important points in the examination of the feces, it has not been my endeavor to cover the subject, but simply to touch upon those features that enter into the routine examination. The chief object, however, is to direct attention to a class of work that is being greatly neglected by the general profession.

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PNEUMONIA.*

BY TINSLEY BROWN, M. D., HAMILTON, MO.

I am aware that in choosing my subject I am not bringing to your notice the name of a disease new to you, but one that is familiar to you as medical men, and also to the laity. This dreaded affection claims its thousands yearly. There is probably no other acute disease so fatal in results. The disease is found alike in valley, plain and mountain. It is no respecter of age, sex or condition of life. We find those in childhood, youth, middle life and old age, stricken alike.

The two general divisions are the lobular, or broncho-catarrhal form, and the lobar or croupous. The first form is most common in youth and old age, in which it follows a bronchitis, or some disease of the respiratory tract, such as diphtheria, scarlet fever, measles, whooping-cough or some other disease. The second form is probably a primary disease, and the onset is sudden; frequently the first symptom is vomiting or a severe chill, equaled by none except that of ague. Since the cause is acknowledged to be of microbic origin, we may expect the different forms to be caused by different bacilli. That denominated by Friedlander and Frobens as pneumococcus, is found to predominate in the lobar form, and the mixed infection in the lobular; the pneumococcus, streptococcus and staphylococcus may all be found, or a few of the first or many of one or the other, but in the severe cases the staphylococcus predominates. In lagrippe which is followed by pneumonia, the bacillus of Pfeiffer and mixed infection is probably the etiological factor.

The toxemic or septic form is called adynamic, low, or typhoid, pneumonia. The clinical picture is more or less the type of blood poisoning, with symptoms involving the nervous mechanism.

Latent pneumonia is where the characteristic symptoms are wanting. Weak and slow pulse, low temperature, and respiration not deviating much from the normal, and cough and expectoration absent or scanty. Some delirium may be present. Physical examination reveals the signs of pneumonia. This is commonly found in old age and alcoholics.

There is a pneumonia which is called the abortive form, in which all the symptoms are well marked as to chill, rapid rise in temperature, accelerated pulse, and respiration. The cough and the rusty-colored sputum are well marked, with physical signs of effusion. The pain is very characteristic. This form runs a short course and terminates in from 12 to 72 hours by rapid crisis. I had such a case which terminated in 48 hours with rapid recovery.

The obstructive form is that in which in the passage of blood through the lung is obstructed, arising from the extensive consolidation.

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Congestion, or edema of lung, may cause the same symptoms such as cyanosis, dyspnea, and rapid heart failure or dilatation, resulting in a rapid fatal termination.

The gastrointestinal symptoms may often cause the real malady to be overlooked. I have had cases in which the symptoms of pneumonia were absent or masked by the gastric symptoms. The dual distribution of the pneumogastric nerve may account for this manifestation.

There is another form in which the nervous symptoms predominate, simulating meningitis, occurring mostly in children, and at one time was thought to be associated with pneumonia of the apex of the lung. This is not always the case, as I saw a case not long since that had been mistaken for meningitis in which the pneumonia was in the base of the right lung. The patient made a rapid recovery.

The form in which there is marked tenderness and abdominal pain might be mistaken for appendicitis or peritonitis. I call to mind one case in which a severe pain in the right abdominal region had been diagnosed as appendicitis, but turned out to be pneumonia of right lung; another in which there had been diagnosed an obstruction of bowels, I found on physical examination, to be a pneumonia far advanced. Pleurisy of the diaphragm may account for this, and the rigidity of the abdominal muscles to limit the movement of the same in the respiratory act. The involvement of the terminal branches of the intercostal nerves may account for some of the pain.

There is a form of pneumonia in which the physical signs are delayed until the fourth or fifth day, and are perplexing cases but finally all the physical signs are plain. Hypostatic congestion, pulmonary edema, acute bronchitis, and pulmonary infarction, all may simulate the symptoms of pneumonia. When we take all the variations of symptoms and signs in consideration, it is easily to be seen that it takes a great deal of acumen and tact to arrive at a correct diagnosis in many instances. Most cases of lobar pneumonia have in connection more or less pleurisy. I have seen it asserted that most cases of empyema come from a pleuro-pneumonia, probably from the pneumococcus or mixed infection. I have known such cases to be mistaken for a consolidation of lung. Liquid effusion might be mistaken for it also. The temperature and pulse are not always an index to the severity of the disease, but as a rule a pulse of 120 in an adult and a temperature of 104 or more, are a bad omen. A subnormal temperature, and a rapid and weak pulse are worse symptoms. The temperature taken in the axilla, or under the tongue is not always reliable; the correct way, especially in children, is to take it in the rectum.

The treatment has varied with time, and that which was thought to be essential in every case is scarcely used at all, viz., blood letting. In a practice of over thirty years, I have never resorted to this as a remedy, nor have I ever seen a case in which I thought it would do any good, but only harm. In Niemeier's work on the practice of medicine, of the edition of 1871, the author advocates the application of ice cold

compresses to the chest, especially in the stage of effusion. I have never had the courage to try it, but do not doubt that it may be good in some sthenic cases. I have used cold bathing to lower the temperature, with good results. I have used such treatment, by applying cold compresses, to relieve croupy symptoms, in acute laryngitis, and generally get good results.

The expectant plan of treatment appears to be the most plausible and the one that I have always followed. The disease is a self-limiting malady, but there are many remedies that can assist in tiding the patient to a safe harbor. The eliminative processes must be looked after; the ventilation of the room which the patient occupies must be watched, and his food should be of such character as to be easily digested. Forced feeding I think avails nothing and very often does harm. The open air treatment, as now advocated by many, that is in tents or pavilions, I think is plausible. In late years I insist on keeping the doors and windows open and make it as near outdoor treatment as possible, and, I am led to believe, with good results. The body should be well protected. The inhalation of oxygen gas is now used where available, but I have had no personal experience with it as a remedy.

In cases where there is a full, accelerated and bounding pulse, I am sure that aconite or veratrum, are of great benefit and I use them in most cases; of late I use aconitine and veratrine which I consider preferable. In former years I used quinine in varied doses, but of late I have discarded it entirely. I have no experience in the administration of large doses as advocated by some physicians. Digitalis is a remedy of much value in the later stages of the malady, as well as where indicated in some conditions in the earlier stage although I now use digitaline. Strychnine is indicated where there is a failing heart. The nitrates as nitroglycerine, or nitrate of soda, are indicated and are of much value as a vasomotor dilator. Morphine or codein should be given for the relief of pain. Strychnine, morphine and codein should be given hypodermically, and it is better to give every remedy that way if possible. Alcoholic preparations are of use in some cases, but in recent years I seldom use them. The coal tar preparations are dangerous and should seldom be used. In most cases expectorants are unnecessary. The muriate or carbonate of ammonium with syrup of tolu, or carbonate of ammonium with infusion of senega, may assist in promoting absorption of the effused material in the lung.

The application of poultices and such remedies in my opinion are useless, and in many instances do harm. There has been a great deal said lately in the medical journals and other writings in reference to the application of the theory of the opsonic unit in this disease. Vaccines are manufactured by a number of physicians' supply houses, and my attention has been called to the antipneumococcic serum. I have had no experience in its use but trust it may do all that is claimed for it. I intend to give it a trial in a series of cases during the coming year if opportunity presents.

CEREBRO-SPINAL MENINGITIS.*

BY GEO. W. GOINS, M. D., BRECKENRIDGE, MO.

It is not my purpose to introduce original data upon this subject, but rather to call attention to some recent investigations relating to this disease.

I was prompted to choose this subject because of having seen a typical sporadic case of this disease a short time ago. The picture of the physician left in the mind is not easily forgotten; he thinks, meditates and hopes, but to no avail.

We have been, up to the present time, practically helpless in coping with this malady, but during the past three years a ray of sunshine is apparently penetrating the dark cloud of therapeutic inertness. A brighter day seems to be dawning.

Cerebro-spinal meningitis is an infectious disease of sporadic and epidemic occurrence, of microbic origin, and characterized by an inflammation of the meninges of the brain and cord.

There is some evidence that it prevailed during different periods in the 14th, 16th and 17th centuries in Europe. In the United States it was first recognized at Medfield, Mass., in 1806, and until 1816 it was constantly epidemic in the New England states. It may be said to have been clearly recognized in all the civilized countries during the first half of the 19th century.

Perhaps the first epidemic in this state occurred at Chillicothe, in 1861. It developed among the soldiers stationed at that point and spread among the civilians of the city and surrounding country. Dr. M. Bottom, of Breckenridge, Mo., saw and treated several cases at that time; and at about the same time Dr. J. M. Allen, of Liberty, Mo., was treating an epidemic in that vicinity. It has been epidemic in various localities of the state since then:—At Wellington, in 1883, and again in 1889, at which time Lexington also suffered an epidemic. It appears sporadically in the city of St. Louis and various localities of the state every year; and likewise in most of the large cities of the United States and Europe. It is ever sporadic throughout the north temperate zone.

The specific cause of the disease was unknown until 1887 when Weichselbaum discovered the dipplococcus intracellularis. It is very similar to the pneumococcus; both belong to the diplococci family. This similarity has given rise to some confusion as to the relation of pneumonia to cerebro-spinal meningitis. More recent investigations have, however, clearly differentiated the two diplococci.

Age and social condition seem to exert no influence on this disease. It occurs more frequently in the crowded tenement districts of metropoli-

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tan cities than in rural districts. The male sex is affected oftener, perhaps, than the female, due most likely to the greater exposure to the vicissitudes of weather. Soldiers on garrison are more susceptible than civilians. It rarely develops among sailors at sea. It occurs oftenest during the winter and early spring but may occur at any season.

In 1904 the city of New York appointed a commission of nine members and appropriated ample funds to investigate this disease.

This commission began an investigation to learn the mode of infection. Many observers have claimed to find the germ in the nasal secretion of normal persons who had not been exposed to the disease. The findings of the commission are as follows: In a series of 52 cases of epidemic meningitis, 12 only showed the germ in the nasal secretion during the first week of the disease; 6 only between the 6th and 9th week; and in one severe case the germ was found on the 67th day of the disease. The nasal secretion of 45 healthy persons living in close contact with meningitis patients was examined. The meningococcus was found in five instances only and that during the first week of exposure to the disease. Fifty-five first year medical students, who had not been exposed to the disease, were examined with negative results in each instance.

The commission further shows that the mode of transmission is by immediate contact, or very close proximity, as the following figures demonstrate: In the winter of 1904-05 200 cases occurred, two or more in the same house. In 58 houses there were 144 cases which were carefully studied, to-wit:

In thirty-nine houses there were two cases each.
In fifteen houses there were three cases each.
In two houses there were four cases each.
In one house there were five cases.
In one house there were eight cases.

This tends to affirm that close proximity to the disease increases its communicability; but what individual variation from the normal is necessary for the germ to gain admission into the spinal canal and there to incubate is yet unknown. An investigation along the opsonic theory may enlighten us.

Symptoms: The clinical picture of a case of cerebro-spinal meningitis is a vivid one. The individual, in apparent health, is suddenly stricken with pain in the nucha, stiff neck, headache, vomiting, convulsions, Kernig's sign, a fluctuating temperature, coma, and, at least in 50 per cent. of the cases, death. These symptoms may appear very rapidly and death ensue within twelve hours from the onset; or it may run a chronic course through months. Stiff neck is present in about 90 per cent. of the cases and Kernig's sign is present in more than 50 per cent. of the cases.

Mortality varies with the epidemic from 50 per cent. to 100 per cent. One attack does not render immunity from another. The incubation period is probably three days. The commission observed that it de-

veloped within two days of each other in two children, and the only contact between them had occurred one day previous to the onset of the first case; the second case developing the second day after the first. If both children became infected from a common source on the same day then the period of incubation would be one day for one case and three days for the other. If the second case was infected from the first, then the period of incubation is three days, which is most likely as it agrees with other cases in the literature.

Complications are common, and among the cases that recover may be mentioned, insanity, blindness in one or both eyes, deafness in one or both ears, paralyses with loss of voice, or use of hands, or lower extremities. The complication may be temporary or permanent, depending upon the damage to the nerve structures.

The treatment has been symptomatic until the commission developed a serum which, from a limited application and observation, promises much. I believe we may expect almost as much as we have achieved with antidiphtheric serum in the treatment of diphtheria. The following reports would bear out this conclusion:

At Akron, Ohio, 11 cases treated with serum, 8 recoveries, 72%.
9 cases treated without serum, 8 died, 89%.

Castalia, Ohio, 16 cases treated with serum, 11 recoveries, 69%.

Of these 16 cases 10 were treated within 72 hours after the onset with 9 recoveries, or 90%.

New York City, 365 cases treated without serum, 344 died, 91%.

Penn. Hospital, 5 cases treated with serum, 4 recoveries, 80%.

The fatal case in this series was not treated until the 11th day of the disease.

Saint Vincent's Hospital, N. Y., 3 cases treated with serum, 3 recoveries.

The method of treatment with the serum is by direct inoculation into the spinal canal after the withdrawal of spinal fluid by means of lumbar puncture. The quantity of serum to be used should not exceed 30 cc., and should be repeated every twenty-four hours for three or four days, or longer. As much as 120 cc. have been injected into the spinal canal in four days without causing any unpleasant symptoms. The best results have been obtained where the serum has been used early in the disease.

Ice caps to the head, cold packs and counter irritation to the spine, blood letting, leeching, hot baths, and opium was the old treatment; and the best therapy to-day, aside from the serum treatment, is, application of cold, narcotics to relieve pain and convulsions, catharsis with calomel and salines, nutritious liquid diet, quiet dark room well ventilated and general sponging and alcohol rubs as indicated. With all of this we still have more than 50 per cent. mortality. Let us hope that the serum treatment shall prove all that it promises.

SANITARY CONSTRUCTION AND FURNISHING OF CHURCHES, HALLS AND PUBLIC ASSEMBLY ROOMS.*

BY A. H. VANDIVERT, M. D., BETHANY, MO.

The first consideration in the proper construction of any room for general assemblies should be to see that there is provision for an abundance of air so forced in as to insure frequent changes, thus avoiding breathing an air insufficient in oxygen.

The next consideration should be the proper heating and diffusion of heat; the proper lighting and diffusion of light and proper furnishing.

The amount of space for each individual supposed to be in a building is well understood and generally provided for by the general architectural plans, and in modern construction it is a part of the business of the architect to see to this important detail. Another equally important point for consideration is the circulation of the air. It is impossible o secure the circulation of the air without provision for ingress as well as egress of the air. The ideal way to do this is by what is termed the fan system, that is by fans driving the fresh air into the conduits leading into the room, and draft flues taking out the foul air. However, other and probably cheaper means may be employed in small rooms, one being what is known as the gravity system.

The proper heating and lighting are both likewise questions of architectural detail and are generally well planned and provided for, but too often not properly executed owing to the tendency to cheapen construction at the expense of properly carrying out of architectural plans and details in the interest of proper hygienic arrangement.

The furnishing and finishing of buildings is a phase of this subject I wish most to call your attention to. The inside walls should be smooth and hard, of light colored material, though not so bright as too strongly to reflect the light, should be as free from sharp corners and angles as possible, and be free from elaborate moldings, cornices, grills and other places to catch dust, and should be of such material that they may be washed or cleaned with moist cloths without injury. The floors should be very closely laid of some hard impervious material, so constructed that they may be cleansed by the liberal use of water in which a very abundant supply of some germicide is incorporated, none better than good strong, old fashioned soap. Carpets of all kinds should be avoided. There is nothing more filthy or more of a menace to good health than ordinary wool or hemp carpet, so generally the pride of church or fraternity halls whose floors are decorated by one of these elaborate carpets of beautiful design in conformity to a taste demanding

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it though in ignorance of the evil that therein lies. Let me call your attention to the conditions—one of these carpets produce. They are placed on the floor sufficiently closely laid to retain all of the dust and filth within the meshes of the carpet ready to be stirred up and floated about in the air by every foot fall. On to this carpet all manner of filth is carried by the feet of careless and thoughtless persons. Decayed animal and vegetable matter, the germ laden saliva, or the contents of some abscess teeming with pathogenic bacteria, human and animal excrements, any and all kinds of filth is carried in and wiped off the feet, left on the carpet to dry and be pulverized into dust to float about the room and lodge in the throat, lungs, mouth, stomach, eyes or any other accessible part of the body. Our only protection against their invasion is the amount of resistance in our healthy race of people. What is said about the carpets might be said with equal force about the upholstering with textile fabrics.

If anything be used in the way of covering for floors some form of linoleum properly applied, or better still rubber mats that can be easily removed and disinfected by the liberal use of hot water, soap, fresh air and sunshine. The furniture should be simple in construction, of smooth finish, all parts being easily cleaned with moist cloths and so built as to interfere as little as possible with the free circulation of the air, and if upholstered some dust proof material should be used.

It is a thoroughly proven and an undisputed fact that many of our more common form of disease are produced by forms of bacteria that will remain virulent for a long time under conditions I have described. It is a common remark that some one has taken cold, contracted pneumonia, tonsillitis, diphtheria or other disease, from attending church or other assemblies and going out at night. The truth is generally, it is fortunate the services ended so all might get out in the air thus saving them from being infected by the germs with which the air of the room was polluted.

The so-called taking cold may produce a condition favorable for the invasion of these pathogenic bacteria, thus causing diphtheria, pneumonia, tuberculosis or what not,—and not the fresh air out doors, be it night air or day air. The air is one of nature's best and most reliable germicides, and protects us from our own indiscretions and follies born of our ignorance.

THE OPSONIC THEORY.*

BY H. C. FREUDENBERGER, M. D., CLARKSBURG, MO.

Perhaps one of the most interesting subjects before the medical world to-day, from a scientific standpoint, is that of the opsonic theory. At least such has been the case with me. The subject having been discussed as it has in all the leading papers and before many medical societies, it occurred to me that perhaps an epitome of the interesting work already done along this line would be of interest to this society.

Dr. A. E. Wright, of England, has for several years been experimenting and investigating in the fields of immunity and inoculation or vaccination, and as a result of this arduous, careful, painstaking work has evolved a new theory as to how nature combats and overcomes infectious diseases. His theory in brief, as I understand it, is this:

All infectious diseases are produced by germs or microbes. Each species of microbes produces its own particular pathologic or clinical condition by gaining a lodgement in the human tissues and there setting free in the body its own specific toxin or poison. The body or organism has the power and does manufacture or produce an antidote to these disease germs when once they gain a lodgement in the organism. This antidote or chemical substance which the cells of the body manufacture, is set free in the blood and circulates through the capillaries and so comes in contact with the pathogenic germs infesting the body; and having come in contact with them has the power of so modifying them that the leucocytes (phagocytes), or scavenger white corpuscles, have the ability to destroy the germs. These particles, substances or antidotes, as I have called them, which the body elaborates in its effort to ward off disease, have been named by Dr. Wright, opsons, meaning "I prepare food for," "I prepare a dinner." If this theory as enunciated by Wright be true, the science of medicine has wrested from nature one of the greatest truths, if not the greatest yet established by that noble profession.

It seems that nature takes care that we discover her secrets only after an endless amount of work and worry. The principles making up this theory have been established one by one during the past century. The earliest germ from which it sprang, we might say, was the discovery of vaccination. The immortal Pasteur, fully realizing the importance of the germ factor in the production of disease processes, and being cognizant of the effect of vaccination on smallpox, gave it as his opinion that the day would come when we would combat all infectious diseases by vaccination. It was a number of years after this startling prophecy of Pasteur that another profound thinker appeared on the scene and formulated his theory of phagocytosis—this was Metchnikoff.

*Read before the Moniteau County Medical Society, December 12, 1907.

According to this theory, when infectious bacteria gain a foothold in the body the tissues attempt to combat their entrance by sending certain white cells, (leucocytes) of the blood to the place of invasion to contest their right of entrance. These white cells, phagocytes as they are called, rid the body of the invading bacteria by filling the tissues in which the bacteria have found a lodging and engulfing them, thereby devouring and destroying them. It is a familiar sight and can be seen in the region of any inflamed area. If we examine microscopically a section of the part inflamed, we will find the tissues filled with invading germs, but along the invading zone we will also see vast clusters of phagocytes, or white corpuscles, in some of which we will see the germs just entering, in others several may have already entered, while in others the process of destruction of the deadly germ has already begun.

Metchnikoff's theory in part was true. The white corpuscles do play an important part in the role of immunity. But he was wrong in holding that the fluid portions of the blood, the serum, was indifferent or inert in the process of combating infection. For as bacteriologists, pathologists and scientists, continued to study this question they found this theory would not hold in all cases. The phagocytes were not always victorious over their enemy, the bacteria, and many times, instead of destroying and ingesting them, they themselves were overcome by the invading hosts of bacteria. This being the case the question then arose, why is it that the bacteria are now successful and now the leucocytes? To my mind no one has yet so successfully answered this question as A. E. Wright in the opsonic theory as he has enunciated it.

It seems to me that Prof. Wright in this theory combines the theory of Metchnikoff and Ehrlich. According to Ehrlich's side-chain theory the tissues of the body manufacture chemical elements which circulate in the blood plasma and form chemical combinations with the bacterial toxins, thus rendering them harmless. Neither of these theories is complete, says Wright. There is truth in each of them, but not the whole truth. The phagocytosis theory of Metchnikoff is correct in that it is the leucocyte that destroys the invading germ and thereby brings about health *from,* and immunity *to* disease; but it does not explain the process by which the germ is prepared for destruction by the leucocyte

The side-chain theory of Ehrlich is true, in that the body tissues, individual cells, elaborate a substance through the aid of which disease is warded off and immunity brought about; but this is not brought about by these substances counteracting the toxins of the bacteria, but instead, by so chemically or otherwise changing these bacteria in such a way that the leucocytes are thereby enabled to ingest them.

In accordance with Wright's theory there is a different opsonin in the blood for each kind of bacteria. One individual succumbs readily to one infectious disease, another to another; or at one time he is practically immune to a disease, while at another readily succumbs to it. This is explained on the assumption in the first case that the opsonins of one disease may be large in quantity in one individual while small in an-

other, or, in the latter, that the opsonins of one and the same disease may be large in quantity now, and small a month from now, or *vice versa*. Here, instead of saying the infectious process is more virulent, or the vital resistance less, we would say the opsonic index is below one or below normal. This Prof. Wright holds to be actually the case. The advocates of this theory hold that the leucocytes are powerless to perform the function of destroying the germs without the help of opsonins. This fact can be proven as follows:

1. Isolate the leucocytes from some freshly drawn blood and mix with living germs in a normal saline solution. Here on microscopic examination we find that the leucocytes do not attack the bacteria.

2. Now add to the mixed leucocytes and bacteria suspended in saline solution, blood serum. The phagocytic or destructive power of the leucocytes on the bacteria begins at once. In a short while many of the leucocytes will be found ingesting the bacteria. This proves that the presence of serum is necessary for phagocytic action. According to Wright, the serum produces this effect by the action of the opsonins upon the bacteria—the opsonins, like so many other compounds, being in solution in the serum. He has developed a very ingenious means of determining the opsonic power of the blood for any one disease. Suppose we desire to know one's opsonic power for tuberculosis. He tests the phagocytic power of this one's blood for tubercle bacilli. At the same time he tests the phagocytic power of the mixed blood of several normal individuals for tubercle bacilli. Say each white corpuscle in the individual's blood in a given time ingested five tubercle germs, while each white corpuscle of mixed blood ingested in the same time seven. Here the opsonic potency of the patient's blood is five sevenths, or below normal.

Now the question arises, why does not the patient overcome the malady? It is because the index is below normal. The elements which assist the leucocytes in their fight against the invaders are diminished. What shall we do? Raise the opsonic index to, or above normal and the defenders will prevail, the forces of nature will become aggressive and throw off the invading hosts.

Now is this possible in a practical way? Is it possible to raise the opsonic index to one, or above one? Say we are to treat a tuberculosis patient. His blood is tested for its opsonic index, which indicates whether his vital resisting powers are above or below normal, whether nature is advancing towards cure, or the disease process is in the ascendency. If the index is below normal, less than one, he is given a hypodermic injection of specially prepared tubercle bacilli—the bacteria having been previously rendered harmless by heat. Now the index is taken daily, and we find that for one or more days the index grows less and less—the negative phase. But finally a rise is noticed, and for perhaps a week it rises gradually higher and higher until, at its height, it is much above normal—the positive phase. As this index again falls day by day it is carefully watched. When it recedes about to normal, another in-

jection is given, and the same process is again passed through. However, with each succeeding injection the negative phase is less and less noticeable until finally we have no negative phase at all—the index growing higher and higher, until we have an index permanently maintained at normal or above normal. By this means the blood serum is kept in a condition to prepare the bacteria for destruction by the white corpuscles—that is in as high a state of opsonic power as possible—thereby aiding nature in throwing off the disease.

This principle is being put to practical application in staphylococcus infection of the skin, as in acne and boils, in tuberculosis of joints, glands, and even of the lungs, in empyema due to pneumococcus, ulcerative endocarditis due to streptococcus, and in various other infections of specific bacterial diseases. It is only applicable where the specific germ is known.

I have lately seen a very ingenious argument given for early operation for appendicitis. It was based on the principle involved in the opsonic theory. It was argued that where we operate on an individual in the interval we operate on a practically well man and make him sick. The system will be obliged to array its forces of defense, opsonins and leucocytes, to redress the surgical insult. The individual suffering from an acute attack on the other hand is in a state of preparedness for a more serious battle than that of the surgeon. To such a person the operation comes as a comparatively little thing, and if no error is made in technique, relief is immediate and convalescence speedy.

The principle is not only being used in the treatment, but also in the diagnosis of disease. Dr. O. H. Brown, of the St. Louis University medical school, has experimented largely along this line in the diagnosis of tuberculosis. He has found that where the opsonic index test indicated tuberculosis, the tubercle germs were demonstrable in the sputum with but few exceptions. Usually one test was all that was necessary to demonstrate the abnormal resistance. In not a few cases the diagnosis was made on the opsonic index findings, without regard to the microscopic test or clinical or physical findings. Two of the cases where the indices were low and no bacilli were found in the sputum, were treated with tuberculin in minimum doses and were relieved of their symptoms.

And now in conclusion, let me say, it has not been my intention in this short paper to present my own views of the practicability of the opsonic or vaccine treatment. The great interest taken in the theory by the medical profession during the last year, is my excuse for asking your attention to the paper. My intention has been to present a résumé of the theory of A. E. Wright, as I understand it, at the same time giving it in its relation to well known theories of immunity. By thus presenting it I believe it is better understood.

As a parting word, I cannot refrain from saying that I have been deeply impressed with the theory. Theoretically, it explains many things previously obscure. Practically, it will, I believe, in the near future, aid us in the diagnosis and treatment, yes, in the cure, of many ailments that have heretofore baffled us.

ADDRESS BEFORE THE SOUTHEAST MEDICAL ASSOCIATION.

BY J. L. EATON, M. D., BISMARCK, MO.

It is my purpose to speak in a general way only of the open air treatment for incipient tuberculosis and to recite a few brief facts in connection therewith, presuming that all agree that tuberculosis is a disease that should be dealt with in a rational, common-sense way and on comprehensive and systematic lines. This disease holds a very special interest for every loyal physician, not merely to arrest or cure but if possible, or as nearly as possible, to eradicate and prevent it.

All success, individual, state or national, rests upon health, and the paramount duty of every true physician is to prevent as well as to cure disease.

Health depends largely upon the amount and purity of air, the cleanliness of the home and the quality and quantity of food.

Close bed-rooms make myriads of graves. We spend one-third of our lives in bed and yet how little attention is given to ventilation. Never is an expert in sanitation consulted in the construction of our modern homes and the natural result is that we are not living as long as our grandfathers and grandmothers did. Once arriving at adult age, the average man or woman has few years of survival to expect; even during the past fifteen years, the death rate of persons over 50 has risen considerably, and this is directly traceable to our modern civilization. Bookkeepers, paper hangers, plasterers, in fact all whose occupations require them to spend their time in-doors in badly lighted and poorly ventilated buildings, have an unduly high death rate.

Therefore, the large cities with their crowded tenement districts, bad air, little sunshine, poor ventilation, are the hot beds for tuberculosis, and the large cities are now furnishing about 92 per cent. of all incipient cases that are cared for at the various sanatoria throughout the country.

Since the start of the very extensive in fact general crusade against tuberculosis, we who are more or less in close proximity to the fight, get comfort and find a new appeal in the results as well as the words spoken by ardent warriors who are struggling with the great white plague.

There has been a movement, or rather a concentration of ideas, among professional men along the line of out-of-door life within the past five years, that we ourselves are pleased, I might add almost frightened, by the tremenduous shadow which we cast. We are not only exhibiting a healthy and conservative but a remarkable growth along this line and are doing it in such a way as to influence thinking people everywhere. A new idea or system must justify itself by results; conservatism, or the unwillingness to welcome new things, has its uses. Most new things are not good and die an early death, but those which push themselves forward by their own weight and merit and force themselves upon the attention and consideration of the profession, are the un-

conscious production of experience and human wisdom and necessarily attract that honest consideration which they so richly deserve.

The first duty of the physician is to the family and patients under his control or care. There is no higher duty or greater obligation than to preserve the family, which is the fountain of patriotism as well as of virtue.

The crusade against the great white plague has deeply engaged the best thought of the best men on both sides of the Atlantic and to-day we in America are arresting or curing about 86 per cent. of incipient cases of tuberculosis that, for hundreds of years, has been the most feared, the most prevalent and most fatal of all diseases.

Hippocrates, the most celebrated physician of antiquity, 440 years B. C. described pulmonary tuberculosis as the "disease which is most difficult to treat and which proves fatal to the greatest number."

Profiting by the experience of observing, brilliant and brainy pioneers in this work, Treaudeau of New York, Brehmer and Detweiler, we have at the various sanatoria arrived at the most satisfactory solution of the problem of handling tuberculous patients in the incipient stage.

Aside from the beneficial and actual results accomplished in a well regulated and properly managed sanatorium, the educational advantages stand as the most valuable part for each patient is taught the daily life that must be led and what is known about the disease and its cure, and when he leaves the institution he is an enthusiastic walking, talking, teaching missionary in his community for open air, good diet, and rest.

Missouri physicians are deeply interested in the crusade against the great white plague; a state's health is an integral part of that state's material wealth and a very important factor in its happiness. Missouri is maintaining its position in the leading ranks of progressive states by establishing a state sanatorium for the health of its citizens—the care and cure of incipient tuberculous patients, located at Mount Vernon at an altitude of 1250 feet in the heart of the Ozarks.

The name Ozark is full of suggestion and significance. It suggests a congenial climate and a tremendous area containing unmeasured natural resources. It suggests a people of virility and patriotism, hardy and thrifty with energy and pluck unsurpassed anywhere. It suggests pure air and water, nature's cures, for in the Ozark hills water abounds possessing to the fullest extent the virtues and medicinal qualities that have made the foreign resorts famous.

The Ozarks is nature's picture gallery—views of the picturesque, the beautiful and grand, varied with forest, vale and mountain in rare and unique combination. It is here in the open air that we have a delightful, salubrious and invigorating climate, with scenic attractions that rival the Adirondacks and the Alps, the wonder and delight of all who are permitted to see its beauties and where the invalids will be tempted to linger and enjoy at leisure the pure, refreshing, invigorating and balmy breezes, and in fact remain in cheerful, happy and prosperous contentment and await complete recovery.

The splendid opportunities for incipient cases to recover in the open air of the Ozarks have in the past been overlooked, but these lost opportunities are now dim and vanishing by the throbbing fullness of an appealing present.

The Missouri State Sanatorium is a standing invitation to those unfortunates afflicted with incipient tuberculosis. Missouri physicians are responsible for this beneficent institution. The lives saved at this sanatorium are living trophies of our victories, and the joy, sunshine and happiness thereby restored to the homes of worthy Missouri citizens and anxious loved ones, must furnish one of our best rewards.

The sanatoria for consumptives in this country extend from Rutland, Massachusetts, to the Pacific Coast, Texas and New Mexico, and I might say from the northern lakes to the Gulf. The U. S. Marine Hospital service in determining a location for a sanatorium for consumptive sailors, selected Fort Stanton in New Mexico, where for several years it has been conducted with a great degree of success. What will cure a consumptive will surely not hurt a well man. It is easier to keep tuberculosis away from us than to get rid of it when we have it. Therefore our most important and immediate method of fighting the plague lies in defensive rather than offensive warfare. Therefore get the fresh air habit.

It may now be asserted that sleeping out of doors or in the open air is feasible and beneficial in all climates and in all seasons. The person who does so does not catch cold, as the uninitiated always fear, but on the contrary he becomes almost absolutely immune to colds. To come nearer to it, did you ever catch cold sleeping in an open house, or camping in a tent?

I can still vividly recall the astonishment with which I awoke in a woodman's cabin in Iron County one winter morning, twenty years ago, with one inch or more of snow over the entire bed. I awoke without a sniffle and with a feeling that I had been made new while I slept.

How we recall the healthy, massive, rugged pioneers of this country, when the open log houses were in vogue, where nature's ventilator, the big fire place, prevailed, with open floors and loose planks for a loft and the chinking out in many places. Pneumonia was at that time a seldom occurrence and tuberculosis was practically unknown.

Whoever heard of a tramp having tuberculosis; his bed is a slab or an old railroad tie, his covering is nothing less than the canopy of starry decked heaven. Get the open air habit, get the out-of-door habit. It takes time to acquire it, but when once formed you wouldn't exchange it for anything else on earth. You can't catch cold sitting in an open field or garden, from an open gate. We do, however, catch colds when we crowd into hot houses and rooms, shutting the doors and windows and thus provide a ready-made hot house for the cultivation and transmission of bacilli in all their various forms. It is there we catch cold and a constant succession of such colds implies a mode of life in which all aerial microbes are afforded abundant opportunities.

Open air or fresh air is essentially necessary under all conditions, let every breath or inhalation have no suspicion of ever having been breathed before and as a general rule the colder the weather the better the patient likes it. In the Adirondacks where every home is constructed for a consumptive home, they sleep out with the thermometer 10 to 40 degrees below zero, and derive marked benefits therefrom; plenty of warm night clothes, woolen sheets, warm mattresses of cotton, wool or feathers underneath, are all that is necessary to make one comfortable and luxurious so long as the bed is properly sheltered from the prevailing winds and properly sheltered by overhead cover. On the other hand cold air is not necessarily pure, for some of the foulest air on earth is found in seldom used public buildings that are never decently ventilated, for you have the bacilli which have lurked there since they were last aired as well as the residue of the breaths and prespiration of successive gatherings.

The only way to be sure air is pure and fresh is to feel it blowing across your face day and night. Sit or sleep in a gentle current of air all the time you are in-doors. Don't call it a draught for if you do up go hands in holy horror. Call it a current of fresh air, or a gentle breeze, then no one is afraid of it.

The open air treatment of consumption has converted us into the belief that a gentle breeze or draught is a friend instead of an enemy.

These are some of the practices that insure the best results at well governed sanatoria and the home physician, the general practitioner, must so impress the laity. Emphasize the necessity of remaining at a sanatorium a sufficient length of time to establish permanent results, in other words they should "labor to get well" as getting well is a genuine occupation of itself.

Proper individuals with incipient cases can secure most prompt results. Missouri open air will cure consumption.

There is nothing like it under the broad sunlight of heaven, the open air of the Ozarks. There is nothing quite like it on the green earth. Do you wonder that we become open air enthusiasts?

Therefore, to those predisposed to tuberculosis, the secret of longevity lies in the following ten commandments:

(1) If possible let every inhalation be above suspicion of ever having been breathed before.

(2) Get eight hours sleep and that on the right side.

(3) Keep your bedroom windows open all night.

(4) Take very moderate exercise, stopping short of fatigue.

(5) Eat nourishing diet, especially eggs and milk.

(6) Avoid intoxicants, which lessen the power of resistance.

(7) Allow no pet animals in your living rooms—they are likely to carry about disease germs.

(8) Live in the open air, preferably the country if you can.

(9) Watch the three "D's" drinking water, damp and drains.

(10) Keep your temper, limit your ambition.

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ADDRESS ALL COMMUNICATIONS TO METROPOLITAN BUILDING, ST. LOUIS, MO.

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E. J. GOODWIN, M. D., Editor.

PUBLICATION COMMITTEE:

Walter B. Dorsett, Chairman. M. B. Clopton, M. C. Shelton.

EDITORIAL

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

As the time draws near at hand for the opening of this World's Congress on Tuberculosis, to be held in Washington, D. C., September 21 to October 12, 1908, every nerve is being strained by those in charge to make this a gathering that will reflect credit upon the American people. Unless there are ten thousand members (meaning those who have paid their dues) the Congress will be a failure, and France and England will have the opportunity of pointing with pride to their congresses as contrasted with the one held in America.

In a letter recently received from Dr. Fulton, Secretary General of the Congress, we are informed that the pro rata membership for Missouri is 640 members. *There are now only 28!* Will Missouri, the banner state of the middle-west, sit quietly by and see herself distanced in this race? We must get our membership quota full. There is not a physician in the State who has so little influence that he can not persuade one friend to join. Let us join; or send substitutes. Let us make such a showing from Missouri that when we go to Washington on September 21st we shall be able to point with pride to the part that our State will have taken in the now universal campaign against man's greatest foe.

The problem of the prevention and control of tuberculosis should interest the general public as well as physicians. There is hardly a family in the State that has not sacrificed to this Moloch at least one victim. There is no reason why the Missouri membership should not be large. It is estimated that there are 30,000 persons in the State who have tuberculosis. Some of those should be glad to contribute their money to aid in protecting others from acquiring the disease.

A membership in this Congress has a very real value. For five dollars one not only becomes a member, with all the voting privileges, but, most important of all, he also receives the bound volumes of the transactions, the value of which will be much greater than the subscription fee. In these volumes there will be popular addresses, and the results of the latest investigations on the many phases of the tuberculosis problem. We urge the profession, most earnestly, not to let slip this opportunity to show to the world that we stand for the highest in medicine, the prevention of fatal disease.

TRIUMPHS OF PREVENTIVE MEDICINE.

Under the caption "What It Means," *Collier's* summarizes succinctly what has been done in the past, and what is now being attempted (chiefly through the efforts of physicians) to further safeguard the people against sickness, by educating the public mind to a proper realization of what diseases can be prevented through a knowledge of sanitary rules. If newspapers throughout the country would give more space to similar topics, the triumph of medicine over disease would be hastened a thousand fold. We quote the editorial in full:

"How many understand the real meaning of disease in the universe? What imagination can grasp even the direct suffering it causes, to say nothing of the indirect? How much does the decreased death-rate of children mean to women in this world? The population in the future will be kept up with a fraction of the births needed in the past. Many times fewer small children will die; the length of life for adults will be still farther extended; those who live will know infinitely less suffering. The average length of life has already been increased from twenty-one and a quarter years in the sixteenth century to forty and a half in the eighteenth. The death-rate from diphtheria has been reduced from forty or fifty per cent. to less than ten. The British in the Boer war lost from typhoid more than those killed by wounds received in battle. In the Spanish war one-fifth of the soldiers in our national encampments had typhoid, and the present situation leads experts to believe that in another war this record would be repeated. How easy it is to avoid, however, was shown by the Japanese. General Oku, in an active campaign of seven months, had 187 cases to 100,000 men. Furthermore, the Japanese learned so much between the Chinese war and the Russian war that dysentery was about one-sixth as prevalent, malaria about one one-thousandth, and the cholera cases diminished from 7,667 cases to none. Many of us are able to remember when yellow fever raged: in 1878 in Memphis, a city of 19,500 people, there were 17,600 cases of this disease, with 6,000 deaths. General Wood said that the discovery of the method of transmission of this disease resulted in the saving of more lives each year than were lost in the Cuban war. Before Jenner's discovery, smallpox killed one-tenth of all the people on the globe and disfigured nearly twice as many. Since then it has existed only because of prejudice against vaccination. In Prussia, where vaccination is compulsory, the mortality has been reduced to one in about 300,000. In Paris, on the other hand, where vaccination is not compulsory, between 1870 and 1895 there were over 20,000 deaths. Before the discovery of

Yersin's and Haffkine's serums the mortality from bubonic plague was over ninety per cent. In London alone, in 1348, 100,000 fell victims to the disease. These are a few examples which show what intelligent study means in the sum of human misery and happiness.

"Now put it into money, this same saving to the race through intelligent observation. Hunter has estimated the average cost of preparing a man for usefulness at $1,500. The loss of 400,000 workers, which occurs every year from diseases that are preventable, represents, therefore, an annual loss to the country of $600,000,000. On Hunter's estimate, the lowered death-rate of England in about ten years would mean a capital saved of $1,285,206,000. The epidemic of 1891-92 cost Philadelphia an estimated loss of about $22,000,000—to railways, hotel-keepers, merchants, manufacturers—for care of sick, loss of time, and expense of burial. A policy of prevention, on the other hand, would have cost about $700,000. The discovery of the yellow-fever mosquito is supposed to save us more money in each single year than was spent upon the entire Cuban war. If we could master tuberculosis, the saving in money in the United States would be $330,000,000 per year. Is it any wonder, then, that the best physicians are heart and soul in the study of prevention? Dr. N. E. Ditman, in the Columbia 'Quarterly' for June, has a powerful plea for a school of sanitary science and public health. To the large body of millionaires who are regular *Collier* subscribers, that essay is sincerely recommended."

RIGHT OF APPEAL FROM ACTION OF STATE BOARD OF HEALTH NOT RETROACTIVE.

Previous to 1907 there was no right of appeal from the action of the State Board of Health in cases where they revoked medical licenses. The Legislature in 1907 passed an act allowing an appeal to the Circuit Court in such cases. The part of the Act (Laws of 1907, page 361) allowing an appeal is as follows:

"* * * * * Any person whose license has been or shall be revoked by the board, shall have the right to appeal from the decree, decision or judgment of the board revoking such license. * * * *"

The license of Edward J. Hogan was revoked by the board on July 10, 1906. On May 7th, 1908, Hogan applied to the Circuit Court for a writ of mandamus to compel the board to allow him an appeal; the board having declined to certify this appeal to the Circuit Court on an affidavit filed by him shortly after the passage of the act referred to.

To sustain Hogan's petition it would have been necessary to have construed the law to be retroactive in its nature. The reply of the board to Hogan's petition was in the form of a demurrer in which it was denied that the act was of a retroactive character, and that therefore Hogan, whose license was revoked before the passage of the act, did not have the right of appeal. Judge Kinsey, of the St. Louis Circuit Court, to whose room the cause was assigned, after taking the case under consideration, on July 27, 1908, sustained the board's position and declined to grant to Hogan the relief asked for.

EDITORIAL NOTES

A MEDICAL CLUB.

The physicians of Clinton have formed a medical club for the purpose of discussing informally whatever topics may be brought up. At the first meeting, held on July 13th, one member reported a case and this was discussed. Then a question was propounded asking for a description of some organ—at this meeting it was the lymphatics. The entire procedure is free from formalities of all kinds, and encourages a disposition to study and inquiry. The plan is worthy of adoption in other communities and we shall be glad to publish information concerning the organization of other clubs of a similar character.

NEW AND NON-OFFICIAL REMEDIES.

The third edition of this pamphlet has been published by the American Medical Association. It contains the articles manufactured by pharmaceutical firms, for the use of the medical profession, which have received the tentative approval of the Council on Pharmacy and Chemistry up to March 14th, 1908. The book should have a place on the desk of every physician, for here he will find a description of the composition, actions, usages and doses of the numerous articles of a non-official character, which are prepared and marketed in accordance with the standards that the profession has established through the Council on Pharmacy and Chemistry. An alphabetical index of the articles and an index of the names of the manufacturers of the articles, are appended; but we believe an index of the diseases which may be influenced by the articles would add to the value of the book.

MISSOURI UNIVERSITY LIBRARY OPEN TO MEMBERS.

The members of the State Medical Association will in future have the privilege of consulting the books in the Library of the University of Missouri. This decision was arrived at recently by the librarian, Mr. H. O. Severance, after a conference with Dr. A. W. McAlester, Jr., the state secretary. The loan of the books to members who desire to consult them, will be made with the least possible formality, though always with due regard for the safety of the volumes. In towns where there is a public library, the books may be secured from the University of Missouri Library by making application through the local library; where there is no library the books will be sent direct to the physician making application for the loan, he, however, being required to pay carriage charges for receiving and returning the books. This is a privilege which we feel sure the members of the Association will appreciate and

promptly take advantage of to the fullest extent. The privilege is not confined to the medical library but extends to all books and periodicals in the large collection of miscellaneous works.

NEW STATE ASSOCIATION JOURNALS.

The Journal of the Oklahoma State Medical Association is the most recent addition to the number of state medical associations publishing their official transactions in journal form. The first number is a neat book of 34 pages and contains the proceedings of the House of Delegates and Judicial Council at the annual meeting on May 12th, the president's address at this meeting, and several papers read before affiliated county societies. Dr. E. O. Barker is editor of the Journal, which is published at Guthrie.

Tennessee has also adopted the monthly journal form of publishing its transactions. The first number appeared in June, under the editorship of Dr. Geo. H. Price, of Nashville. We are sure the Journal will be successful "in spreading the influence of the organized profession in the State," and in many other ways advancing and protecting the interests of the members of the Association. The Journal is published at Nashville. The first number contains a report of the proceedings of the last annual meeting of the Association.

We congratulate these two associations in having established the journal form of publishing their transactions. Under the guidance of Dr. Price and Dr. Barker these two journals will, we feel sure, add to the influence and usefulness of their respective state medical associations.

THE MATERNITY HOSPITAL IN ST. LOUIS.

The Maternity Hospital in St. Louis, organized in April of this year, is an institution which deserves and should receive every encouragement and assistance, not alone from physicians, who are ever ready to promote and advance any plan for the improvement of health conditions, but also from every person who can in any way assist in maintaining an institution for the care and treatment of women who, through poverty or misfortune, otherwise would be compelled to pass through the period of childbirth amidst unsanitary and unhealthful surroundings,—and, in the case of unfortunte girls, too often, immoral and degrading influences.

St. Louis has long needed just such an institution which, properly conducted—and a glance through the list of the Board of Managers of the Maternity Hospital assures this—will go far toward lifting poor and unfortunate mothers to a higher plane of living, a better understanding of the disease-preventing force of a few simple sanitary rules, and, haply, a larger trust in the worthiness of charitable institutions established for their benefit.

The Maternity Hospital is non-sectarian and is patterned after the plans of the Roosevelt and Sloan Maternity Hospitals in New York. A special feature, particularly appropriate in an institution of this kind and full of possibilities for good, is the convalescent ward where patients may remain until they are strong enough to support themselves. In this ward the mother and child live together and are surrounded by every influence that will favor the development of the maternal instinct. Almost all patients are charity cases but there are a few rooms for the use of those persons who are able to pay a nominal sum for the privacy thus afforded. The medical staff is composed of well-known physicians who attend the patients without charge. The hospital is located at 2621 Locust street.

NEWS NOTES

Dr. T. C. Allen, Bernie, Mo., Councilor for the 23d District, has returned to his home after an eight weeks' trip in the Rocky Mountains, on the Pacific Coast and in Old Mexico.

The twenty-first annual meeting of the Medical Society of the Missouri Valley will be held at Council Bluffs, Iowa, under the presidency of Dr. W. F. Milroy, on September 3d and 4th, 1908.

Dr. F. L. Whelpley, formerly assistant physician at the Insane Hospital, St. Louis, has been appointed assistant physician at the City Dispensary, and Dr. F. W. Klocke has been appointed junior physician at the City Hospital, St. Louis.

The regents of the University of Utah have decreed that no teacher, student or employe, shall in future be admitted to the class rooms or buildings of the university. According to the press dispatch from which we glean the information, this action was taken following upon the death from tuberculosis of a teacher in the institution.

Dr. H. W. Wiley, the head of the Bureau of Food and Drug Inspection of the Department of Agriculture, will undertake a comprehensive investigation of baby foods.

The basis for the baby food campaign is understood to lie in the fact that many mothers have written to the Bureau of Food and Drug Inspection that their children have failed to thrive on the preparations and in some instances have died after a diet of some much-advertised concoction.—*(Scientific American.)*

The dispensary service of the Health Department of St. Louis has been extended by the establishment of two new branch dispensaries, one located at 4919 Easton avenue, in the northwestern part of the city, and one at 907 Manchester, in the southwestern section. Branch dispensaries in the extreme north and south sections of the city have been in existence for several years. Ambulance service is continuous at all branch dispensaries. The physicians in charge of the two newly established branches are Drs. Sam Bassett and S. T. Lipsitz, at Branch No. 3, and Drs. Albert Vogel and C. M. Barr at Branch No. 4. The hours of service at the branches are 7 a. m. to 11 p. m. daily.

At the annual meeting of the Oregon State Medical Association, which convened in Portland, July 1 to 3, the president, Dr. Coffey, approved the recent movement which has resulted in the reduction of the number of medical colleges in this country, recognizing that in this way the standard of those institutions worthy of patronage has been materially raised and that many schools of a low order have at the same time been forced to close their doors. Dr. Coffey recommended that a committee be appointed by the Oregon State Medical Association, with instructions to devise means of bringing about a consolidation of the two medical colleges in Oregon. He also recommended the establishment of a medical journal which should be the representative organ of the state medical associations of Washington, Oregon and Idaho, this journal to be controlled jointly by three state organizations. Such a change, *Northwest Medicine* thinks, will involve the consolidation of the two journals in Oregon—*Northwest Medicine* and the *Medical Sentinel*. Dr. Coffey recommended that a committee be appointed to confer with the other two state associations concerning the advisability of adopting such a course and the feasibility of carrying out the plan and report at the next annual meeting. The Association acted upon the recommendations and appointed the committees as suggested by the president.

New Members Missouri State Medical Association.

Andrews, John, Grant City.
Bankhead, C. L., Paynesville.
Bartlett, E. M., Clarksville.
Bewig, Henry W., 802 Salisbury Ave., St. Louis.
Black, Wm. D., 219 Metropolitan Bldg., St. Louis.
Bribach, Benno, 7608 Michigan Ave., St. Louis.
Brown, George, Edina.
Brown, Wm. G., Triplett.
Buechler, J. L. A., Freeburg.
Cooney, Daniel C., 4205 Finney Ave., St. Louis.
Crawson, Egbert, Gaynor City.
Craddock, Frank P., 3029 Washington Ave., St. Louis.
De Long, S. W., Brooklyn.
De Long, W. B., Andover.
Dorsey, Benj. L., 1422 N. Taylor Ave., St. Louis.
Ehrhardt, Rudolph T., 301 Century Bldg., St. Louis.
Fischel, Walter, Humboldt Bldg., St. Louis.
Fox, Sylvester D., Mo. Pacific Hospital, St. Louis.
Gettys, Henry B., 2601 Washington Ave., St. Louis.

Glaser, Martin J., 1825 S. Jefferson Ave., St. Louis.
Hardin, R. W., Louisiana.
Harlan, Warren E., 1719 Market St., St. Louis.
Hearst, Allen L., Mernin.
Holman, J. H., Humansville.
Home, L. O., Linneus.
Hughes, Charles H., 518 Metropolitan Bldg., St. Louis.
Johnson, Walter L., 2144 S. Grand Ave., St. Louis.
Lawhorn, G. W., Forest Green.
Lewis, Charles, 1312 Monroe St., St. Louis.
Luman, F. E., Baring.
MacDonald, John W., 1111 N. Grand Ave., St. Louis.
Maupin, R. E., Shelbyville.
McClure, James, 1704 Market St., St. Louis.
McLaughlin, J. A., Aldrich.
Metcalf, N. E., Maplewood.
Meyers, W. T., Aldrich.
Mitchell, A. W., Humansville.
Myers, James, Greensburg.
Nervins, James A., North Salem.
Newlove, John S., Butler.
Nixon, Wm. A., 419 Shukert Bldg., Kansas City.
Parman, David R., 4473 Delmar Ave., St. Louis.
Pearson, D. W., Louisiana.
Pohlman, Frederick L., 2323 N. Market St., St. Louis.
Reinders, Otto W., Mercantile Trust, St. Louis.
Reynolds, S. H., Maplewood.
Roberts, J. M., Green City.
Rusk, Elizabeth M., 4241 Delmar Ave., St. Louis.
Russell, R. Lee, Humansville.
Schmidt, William Carl, 2417 S. Broadway, St. Louis.
Scott, Elijah A., 1700A S. Broadway, St. Louis.
Sheets, Martin E., 4359 Chouteau Ave., St. Louis.
Shotwell, Richard, Curryville.
Sieving, Gustav W., 3601 S. Jefferson Ave., St. Louis.
Stevens, Charles D., 1749 S. Grand Ave., St. Louis.
Stone, J. M., Laredo.
Tanquary, James H., 930 Belt Ave., St. Louis.
Terry, Robert J., 1806 Locust St., St. Louis.
Tidwell, G. W., De Soto.
Towles, S. P., Jacksonville.
Urban, E. T., 3156 Park Ave., St. Louis.
Wall, Otto A. Sr., 4532 Virginia Ave., St. Louis.
Varner, A. O., Union Star.
Walters, F. E., Bowling Green.
Weber, Frank, Flat River.

New Members From Missouri of the American Medical Association.

Beckham, Genevieve S., St. Louis.
Bellows, G. E., Kansas City.
Banker, O. H., St. Louis.
Burke, C. L., Kansas City.
Child, S. P., Kansas City.
Coffey, W. H., Kansas City.
Epperly, R. G., Prairie Hill.
Esselbruegge, F. C., St. Louis.
Ferguson, J. W., St. Joseph.
Gray, A. L., St. Joseph.
Hale, J. W., Greenville.
Harris, D. L., St. Louis.
Humfreville, D. L., St. Joseph.
Kern, B. C., St. Louis.
Kessler, S. F., St. Joseph.
Leavy, C. A., St. Louis.
McKillip, O. L., Kansas City.
McMurry, M. C., Paris.
Neer, C. S., Springfield.
Newman, S. A., Cassville.
Owens, M. J., Kansas City.
Parce, A. D., St. Louis.
Parker, H. F., Warrensburg.
Payne, H. C., Paris.
Redwine, J. T., Doniphan.
Roselle, T. A., Palmyra.
Sanford, S., Palmyra.
Schmid, W. F., St. Joseph.
Sheley, O. C., Independence.
Smith, J. D., Shelbina.
Smith, W. P., Troy.
Sneed, C. M., Jefferson City.
Straus, Leon, St. Louis.
Swahlen, P. H., St. Louis.
Tout, B. B., Archie.

OBITUARY

JOHN F. REILEY, M. D.

Dr. John F. Reiley died of apoplexy at his home in West Plains, Mo., on June 17th, 1908, after one week's sickness. He was born in Kentucky, October 30th, 1871, and with his parents moved to Howell county, Mo., in October, 1886. His early life was spent on a farm, and although his education was limited to the advantages afforded by the common schools, he succeeded in fitting himself for teaching, and in 1893 was elected county school commissioner for Howell county. He obtained his medical degree from the Missouri Medical College in 1896, and immediately located in West Plains where he entered the practice of his profession and remained to the time of his death. For years he had been a member of the Missouri State Militia; he enlisted as a private in 1899, gradually rising from the ranks until, at the time of his death, he held the rank of major in the medical department of the Sixth Regiment, N. G. M.

Dr. Reiley was an energetic, ambitious young man, and by his untiring efforts had established a fine practice, and occupied an enviable position in the affairs of his community. His untimely death is deeply regretted.

COUNTY SOCIETY NOTES

CASS COUNTY MEDICAL SOCIETY.

Cass County Medical Society met at Harrisonville July 2, 1908. In the absence of the president, Dr. Ramey, of Garden City, called the meeting to order.

Dr. Balliett's paper "Placenta Previa," was discussed and cases reported, all of which proved very interesting.

Dr. Adair gave an interesting account of the Chicago meeting of the American Medical Association.

Dr. Overholser, as councilor, reported the proceedings of the Missouri State meeting held at Springfield.

Special efforts were recommended to induce members to attend meetings by making the meetings more interesting, and also efforts were made to induce eligible physicians to come into the Society.—J. S. TRIPLETT, M. D., Secretary pro tem.

DAVIESS COUNTY MEDICAL SOCIETY.

The third quarterly meeting of the Daviess County Medical Society was held in Gallatin July 7th. This was a public meeting and the laity was invited to be present. The great interest shown by the large audience was a surprise to us.

The meeting was called to order by Dr. W. L. Brosius, president, and the following papers were read:

"The National Tuberculosis Congress and Its Work," by Dr. Charles Pipkin; "Tuberculosis a Communicable Disease," by Dr. N. M. Wetzel; "Sanitation and Tuberculosis," by Dr. James T. Hedrick; "The Early Diagnosis of Tuberculosis," by Dr. D. F. Hanna. These papers were discussed by the physicians and several of the audience.

At 7:30 p. m. Dr. J. M. Allen of Liberty, talked to a large audience on "Tuberculosis and Public Hygiene." He spoke of the early struggles of the profession with deadly diseases, the causes of which were unknown, and the equally deadly work of the surgeons before the day of antiseptics. He reviewed the investigations of Jenner, Pasteur and Koch, and unfolded the results of scientific investigation in establishing the part played by bacilli in the transmission of disease; showed how the malignancy of smallpox was destroyed by inoculation, diphtheria robbed of its terrors by antitoxin, and, while waiting for a specific serum to counteract tuberculosis, that the knowledge of the existence of these germs and the environment absolutely requisite to their existence, makes possible the creation of proper surroundings for the patient's safety and recovery. He spoke of the influence of heredity which he believes to be an entity transmitted from parent to child, making a fertile field for the

tuberculous germ. He urged more attention to isolation of the tuberculous member of a family, that indiscriminate spitting and kissing (of babies) should cease, that more attention should be given to the disinfection of our homes, churches and school houses. Enough statistics were injected into the lecture to astonish and please the hearers with the accomplishments of the Association for the Relief and Control of Tuberculosis, and educative good must of necessity follow this meeting. —M. A. SMITH, M. D., Reporter.

GREENE COUNTY MEDICAL SOCIETY.

MEETING OF JUNE 19TH.

Dr. W. M. Smith lectured on "General Medicine" in the Post-Graduate Course.

MEETING OF JUNE 26TH.

Dr. J. C. Matthews, at the request of the State Board of Health, called the Society's attention to the supposedly irregular and criminal practices of three practioners of medicine in Greene county. A general discussion ensued and Dr. C. B. Elkins (an ex-Member of the State Board of Health) said that, according to his experience, the Board could do nothing unless the local society could furnish absolute and unimpeachable evidence sufficient to prove the guilt. The matter was referred to the Committee on Public Health and Legislation. The subject for scientific discussion was a paper on "Intestinal Diseases of Children," by Dr. W. P. Patterson.

MEETING OF JULY 10TH.

Dr. O. N. Carter read an interesting paper entitled "Acute Dysentery" and said in part: "This is an inflammatory disease of the large intestines, usually of bacterial origin, and due to a lowered resisting power of the patient. The disease may start with a diarrhea, or commence suddenly and soon terminate fatally. The prognosis depends, in a great measure, on the age and condition of the patient as well as the severity of the attack. Rest in bed is of the greatest importance; rectal irrigations have proven most beneficial in his practice and should be used at the outset, often and until the fluid comes away clear. At first he usually gave a hypodermic of morphine and atropine and calomel until the bowels are well cleared out; then, if necessary, opium to relieve the tenesmus. Ipecac may be given for its muscular sedative and secretory stimulant effect, sulphocarbolate of zinc may be used as a disinfectant in the form of dysentery due to the bacillus dysenteriæ, anti-dysenteric serum has been very favorably reported on.

Drs. Miller, Willier, Farnsworth, Smith, Fulton, Cox and Moore discussed the paper.

Dr. Willier reported an interesting case of typhoid fever which, notwithstanding the best of treatment and surroundings, terminated fatally in seven days.

The Society then adjourned for the summer vacation until September 11th.—J. L. ORMSBEE, M. D., Secretary.

HARRISON COUNTY MEDICAL SOCIETY.

The Harrison County Medical Society met in regular quarterly session at Ridgeway, June 30th. This was a public meeting, a sort of A B C program having been arranged for the benefit of the laity.

The audience was large and enjoyed the papers and discussions, which were interesting. The doctors present were Drs. A. H. Vandivert, H. E. Gwinn, C. A. Mitchell, W. B. DeLong, S. W. DeLong, A. W. Williams, W. H. Wiley and Jas. H Morroway

There were a few changes in the program on account of some of the doctors and others being absent, but on the whole the meeting was, as remarked by an enthusiastic visitor, a "dandy."

A copy of the program is published below and may serve as an example of what can be done to interest the people. This program was given wide circulation through the courtesy of our various county newspapers.

Address of Welcome, by Rev. L. C. Powell; The History of Medicine, by Dr. C. A. Mitchell; The History of Surgery, by Dr. A. H. Vandivert; Bacteriology, by Dr. J. H. Morroway; Medical Science, by Dr. M. H. Eades; Famous Medical Men, by Dr. A. W. Williams; Reading, by Miss Ada Pontius; The Ministry and Medical Profession, by Rev. W. H. Hobbs; Relations of the People to the Doctors, by Dr. W. Swint; The Eye, by Dr. G. E. Gwinn; Care of Children, by Dr. C. H. Robertson; The Child in the Schoolroom, by Prof. E. M. Brooks; School Sanitation, by Prof. Mark Burrows; Nursing in Sickness, by Dr. F. H. Broyles; Miscellaneous Remarks, by Dr. W. H. Wiley.

The meeting was called to order at 2:30 p. m. and the attention of the audience was maintained throughout till 5:30, when signs of restlessness became manifest, so it is submitted as a suggestion to others contemplating such meetings not to make them too long.

In the address of welcome, Rev. Powell spoke of the visions of young men and the dreams of old men, and predicted a roseate future for everything,—characteristic of his usual happy style and optimistic nature. His remarks caused the members of the medical society to girt themselves for still harder battles. Dr. W. S. DeLong responded and apparently surprised some of the public when he told of our altruism.

Rev. Hobbs spoke feelingly and expressed two views which should be more generally put in practice. First, if as a people we are to enlarge and broaden we must have consideration for others, particularly the professions, and the people with whom we deal. Secondly, what we want is the best principles to actuate us all,—not too much policy, for we must be firm and strong to make the best of all; and as physicians strive for the best, they should therefore be given consideration by the people.

Prof. Brooks called attention to the healthful social signs in regard to the development of the child, and further demonstrated the need for this in a paper that was thoroughly practical.

Dr. Wiley remarked on all the papers and then a general discussion was entered into, after which a business session was held.

Dr. S. W. DeLong of Brooklyn, was admitted as a member of the county society.

A vote of thanks was extended to Rev. Powell for courtesies shown, and likewise to the newspapers of the county for their kindness in publishing the program in their columns. All in all this meeting made an excellent impression.

After adjournment the members of the society and those who participated in the program, with their wives repaired to the Central Hotel and enjoyed a repast.

Dr. W. B. DeLong spoke on the importance of being a member of the society. This had been impressed upon him, he said, when he had contemplated moving to Minnesota some time ago, and corresponded with the Minnesota State Board; one of the questions they were particularly anxious to have answered was, whether he was a member of the county medical society, and requested him to secure vouchers from the officers of said county—evidently the most reliable passport.

The next meeting will be held at Bethany, Mo.—Jas. H. Morroway, M. D., Secretary.

HOLT COUNTY MEDICAL SOCIETY.

The Holt County Medical Society met at Mound City July 2. Dr. J. F. Chandler read a paper on "Appetite—The Loss of." Dr. E. Kaltenbach read a paper on "Sour Milk as a Food." Dr. W. S. Wood read a paper entitled "Gastro-Enteric Fever (Acute)."

The members of the Society residing in Mound City entertained the Society at a dinner at Hotel Gladstone.

The next meeting will be held at Oregon, on the second Thursday in September.—J. F. Chandler, M. D., Secretary.

POLK COUNTY MEDICAL SOCIETY.

The Polk County Medical Society met at Bolivar July 14th, with the following members present: Drs. J. E. Loafman, R. W. Paris, S. W. Cossins, A. J. McLaughlan, W. S. Hopkins, A. P. Mitchell, J. F. Roberts and A. W. Mitchell. Dr. A. W. Mitchell was elected a member of the society.

Dr. R. W. Paris reported an interesting case of diarrhea in children treated successfully. Drs. Cossins and Loafman also reported similar cases. These cases were discussed by Drs. Mitchell, Hopkins, Roberts, Cossins and McLaughlan. Drs. Mitchell and Cossins reported cases of toxic symptoms in children, resulting fatally, due to ptomain poisoning following improper diet. Dr. Cossins reported a case of double hydrocele and ascites and the treatment adopted. Dr. McLaughlan reported a case

of cystocele, also one of cardiac trouble with marked cyanosis and albuminuria. Dr. J. E. Loafman read an interesting annual address to the society.

On motion it was requested that the address be given to the local papers for publication. After transacting some business matters, the society adjourned to meet on the second Tuesday in August.—J. F. Roberts, M. D., Secretary.

ST. JOSEPH-BUCHANAN COUNTY MEDICAL SOCIETY.

Regular meeting Wednesday evening, June 10, the president, Dr. H. S. Forgrave, in the chair.

Dr. Lee called the attention of the society to the International Congress on Tuberculosis, in Washington, in September, and urged action on the part of the Society in stirring up interest in this work. He suggested that the city and board of health, as well as the Society, appoint delegates to the Congress.

The program of the evening consisted of reports from the recent Chicago meeting of the American Medical Association, and proved a most interesting and instructive session. Dr. Daniel Morton presented a synopsis of the Surgical Section; Dr. Gray reviewed the Medical and Obstetrical Sections, while Dr. Bell gave an abstract of the proceedings of the Gastro-Intestinal Association, which was held in Chicago at the same time. Impressions of the meeting were given by Drs. Gleaves, Wallace, Kessler, Fassett and others.

Dr. E. A. Donelan, St. Joseph's oldest living practitioner, celebrated his eighty-fourth birthday, July 9th, at his home, surrounded by his dearest friends and colleagues. Those who called to pay their respects to the nestor of the profession, found the doctor seated on his pretty lawn, surrounded by flowers and palms, the grounds and porches being lighted by Chinese lanterns, while refreshments were served on the east gallery.

Dr. Donelan was secretary of the first medical society organized in St. Joseph in 1860, and has been prominent in medical organizations ever since. He has served a number of terms in the State Legislature, and was active in his support of medical and educational laws.

Dr. Donelan was one of the founders of the College of Physicians and Surgeons of St. Joseph, which was merged with the Ensworth College nearly a quarter of a century ago, and for many years taught in the latter institution. He was for ten years president of the School Board, and was later appointed medical examiner of the schools, which position he now holds. Dr. Donelan bears the burden of age and service remarkably well, and continues to attend to his duties in the schools, and enjoys communion with his friends. Many interesting stories of the hardships of pioneer days are told by Dr. Donelan, whose memory is most reliable and active. His first visit to St. Joseph was in 1848, and while here he stood on the bank of the Missouri and watched the westward flight of the "pony express," that carried the mail to California.

It is pleasant to contemplate the acts of men, who prompted by a sense of duty go through life unselfishly and honorably, and it is fitting that such deeds of valor and courage should be recognized and honored, while they live, by those who follow in the pathway of the pioneers who blazed the way. This sentiment was most effectively brought out by Dr. Jacob Geiger, who acted as chairman of the evening. Dr. T. H. Doyle related some interesting episodes during the early days when he was a partner of Dr. Donelan. Other speakers testified to the high character of the venerable host, and to the inspiration his active life has ever been to the younger generation. Those who spoke were Drs. T. E. Potter, C. R. Woodson, Chas. Wood Fassett, H. W. Westover, Rev. Henry Eckel and Mr. Jos. McEvoy.

Dr. P. I. Leonard on behalf of the St. Joseph-Buchanan County Medical Society, presented Dr. Donelan with a Turkish leather rocker. Dr. Leonard said:

"Mr. Chairman and Gentlemen:

"Before presenting this material manifestation of the good will and friendship of the members of our Society, I wish to say that I fully agree with the many kind words spoken in praise of the life-work of our esteemed colleague, Dr. Donelan, I wish to say that we are not here as a matter of conventionality, but because we feel deeply that in honoring the nestor of our profession, we pay a deserved tribute to one of Nature's noblemen. In looking back over the career of such a man we can truthfully exclaim: 'Well done, thou good and faithful servant.'

"Not so many years ago, men did not meet to do honor to one who had distinguished himself by some useful service to mankind, on account of intense religious or political bias, and it remained for posterity to do him honor. Gentlemen, if we have any roses to scatter, let us do so while our benefactors are still among the living. Let us enrich the beautifully colored sunset of a life spent for the welfare of others, by this demonstration of honor. Without sentiment, life were barren, and it is just such occasions as this that makes us all better and happier men. In presenting this chair, we hope that you will be able to rest in it for many, many years, always comforted with the thought that your colleagues wish you all the happiness possible in this world. Again, let me say, that we appreciate the services you have rendered to medicine and to humanity."

Dr. Donelan responded feelingly, and thanked the donors for their evidence of esteem.

The St. Joseph-Buchanan County Medical Society has adjourned for its summer vacation. Meetings will be resumed September 9th.—Chas. Wood Fassett, M. D., Secretary.

ARTICLES APPROVED BY THE COUNCIL ON PHARMACY AND CHEMISTRY.

IODIPIN 25 PER CENT.

A preparation similar to Iodipin, but intended for hypodermic administration.

Dosage.—2 to 6 Cc. (30 to 90 minims) by hypodermic injection. This article is also marketed in the form of capsules, each containing 2 Gm. of iodipin 25 per cent. Prepared by E. Merck, Darmstadt. (E. Merck & Co., New York.)

IODOFORMOGEN.

A nearly odorless mixture of iodoform and albumin.

Actions and Uses.—Its action is that of iodoform, which is slowly liberated in connection with wound surfaces, making the action more persistent. It limits secretion, favors granulation and promotes drying. Iodoformogen is recommended as a dusting powder for ulcerated surfaces. Dosage.—Being about three times as voluminous as iodoform, it is usually applied undiluted to the affected parts. It may be used as a snuff in ozena, mixed with an equal amount of boric acid. Manufactured by Knoll & Co., Ludwigshafen a. R. and New York.

IODOTHYRINE.

Iodothyrine is a milk sugar trituration of the active principle of thyroid gland, 1 Gm. representing 1 Gm. of fresh gland and containing 0.0003 Gm. of iodine.

Actions and Uses.—It is similar in action to Glandulæ Thyroideæ Siccæ, U. S. P., but it is claimed to possess the advantage of more definite strength and absence of decomposable extraneous matter. Dosage.—Adults, 0.6 to 2 Gm. (10 to 30 grains); children, 0.3 to 1 Gm. (5 to 15 grains) per day. Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York). E. Merck, Darmstadt (Merck & Co., New York).

ISOFORM POWDER.

Isoform powder is a mixture of para-iodoxy-anisol, $C_6H_4(OCH_3)$ (IO_2) $1:4=C_7H_7O_3I$, an iodoxy-derivative of anisol, with an equal weight of calcium phosphate.

Actions and Uses.—It is a germicide and antiseptic in consequence of its oxidizing power and, in contradistinction to iodoform, it acts not only in a medium free from oxygen, but in conjunction with free access of air. It is claimed to be non-toxic in comparatively large doses and to be absolutely non-irritant to the unbroken skin. It is recommended as a substitute for iodoform. Dosage.—Internally, 0.65 to 2 Gm. (10 to 30 grains) per day. It is used externally as a dusting powder, as a paste with glycerin, as ointments, suspensions in glycerin, gauzes, etc., in strength varying up to 10 per cent. of pure isoform. Manufactured by Farbwerke, vorm. Meister, Lucius & Bruening, Hoechst a. M. (Victor Koechl & Co., New York).

ISOPRAL.

Isopral, $CCl_3.CHOH.CH_3=C_3H_5OCl_3$, is 1,1,1-trichlor-2-propanol.

Actions and Uses.—Isopral resembles chloral in its action, but is effective in smaller dose. It is prompt in effect and apparently devoid of cumulative action. It has some degree of local anesthetic power. It may be used as a substitute for chloral hydrate and is serviceable as an alternative in cases in which it is necessary to give hypnotics for a long time. Dosage.—0.3, 0.6 to

1 Gm. (5, 10 to 15 grains) in capsules or wafers which should be dispensed in a well-stoppered glass vial. Manufactured by Farbenfabriken, vorm. Friedr. Bayer & Co., Elberfeld, Germany (Continental Color & Chemical Co., New York).

KASAGRA.

A fluidextract said to conform in drug strength to the requirements of the U. S. Pharmacopeia for fluidextracts. It is prepared with especial care, the drug being extracted with a menstruum containing no alcohol. The preparation is said to contain 0.05 per cent. of alcohol.

Actions and Uses.—Kasagra is recommended as an especially palatable preparation of cascara, owing its laxative effects to this drug alone. Dosage.—1 to 2 Cc. (15 to 30 minims) four times a day, half an hour before meals and at bedtime. Prepared by F. Stearns & Co., Detroit, Mich.

KOLA, STEARNS.

Each 30 Cc. (1 fluidounce) is said to represent 31 Gm. (480 grains) of fresh kola nut. It contains 23.5 per cent. of alcohol.

Actions and Uses.—Kola seeds contain from 1.5 to 3.6 per cent. of total alkaloids, of which from 1-100 to 1-40 is theobromine and the rest is caffeine. About one-half of the caffeine is combined as kolatannate of caffeine. The actions and uses of the remedy are essentially the same as those of caffeine. It is probable that the kola-tannate is not so active as free caffeine. Dosage.—2 to 4 Cc. (½ to 1 fluidram) three times a day. Prepared by Frederick Stearns & Co., Detroit, Mich.

KRESAMINE.

A clear watery solution of 25 per cent. of trikresol (which see) and 25 per cent. of ethylene-diamine.

Actions and Uses.—Kresamine is a powerful bactericide, with a claimed minimum of toxicity. It is said that the bactericidal effect of the cresol and its power of penetrating the animal tissues are greatly enhanced by the presence of ethylene-diamine and it is claimed to be far less irritating when used as a wet dressing than other antiseptics. It is useful in all cases where an active bactericide is required and particularly when the microbes are in an albuminous menstruum. The preparation is not so dangerous as carbolic acid. It has been recommended for the treatment of ulcers, eczema, lupus and other skin affections. Dosage.—It is used only in dilutions (2 to 25) containing 2 per cent. or less of each of its active constituents. Kresamine may be applied in the form of ointment. A dilution containing 2 per cent. of each ingredient was formerly marketed under the name of "Ethylene-diamine Trikresol Solution." This was used without dilution. Prepared by Chemische Fabrik auf Actien, vorm. E. Schering, Berlin (Schering & Glatz, New York).

LAC BISMO.

A mixture said to consist of bismuth hydroxide and bismuth subcarbonate, suspended in water, in a finely divided state, and containing 0.16 Gm. (2½ grains) of the salts in 4 Cc. (1 fluidram).

Dosage.—4 to 16 Cc. (1 to 4 fluidrams) as directed. Prepared by E. J. Hart & Co., Ltd., New Orleans, La.

LACTOPHENIN.

Lactophenin, $C_6H_4(OC_2H_5)$ $(NH.CH_3.CHOH.CO)=C_{11}H_{15}NO_3$, is a compound differing from acetphenetidin (phenacetin) in that the acetic acid group is replaced by the lactic acid group, $(CH_3CHOH.CO)$.

Actions and Uses.—The effects of lactophenin are similar to those of acetphenetidin (phenacetin), over which it possesses the advantage of greater solubility in water. Dosage.—0.5 to 1 Gm. (8 to 15 grains), in wafers or capsules. Manufactured by Chem. Fabrik, vorm. Goldenberg, Geromont & Co.

[TO BE CONTINUED.]

BOOK REVIEWS

500 Surgical Suggestions: Practical Brevities in Diagnosis and Treatment. By Walter M. Bickner, B. S., M. D., Surgeon to Mt. Sinai Hospital, Editor-in-Chief *American Journal of Surgery*, New York, and Eli Moschcowitz, A. B., M. D., Assistant Physician Mt. Sinai Hospital, Associate Editor *American Journal of Surgery*, New York. Second Series. Surgery Publishing Company, 92 William street, New York.

These practical brevities are observations taken here and there from the authors' own surgical experiences, and contain many useful suggestions.

Medical Gynecology. By Howard A. Kelley, M. D., Johns Hopkins University, Baltimore, Md. In one volume. Sold by subscription. Price $6.00. D. Appleton & Co., New York.

Medical Gynæcology by Kelley, covers its allotted field in a most commendable manner. Although thorough and complete in every respect, it does not weary the reader by lengthy elaborations of minor and insignificant details and technicalities—a fault too common in our medical books of to-day.

The chapters devoted to infancy and girlhood merit special praise, being handled in a most efficient manner. The system followed out in dealing with the various considerations of the subject seems perfect; the brief epitome at the head of each chapter is most convenient.

The proficiency attained in this volume has not been surpassed or equaled by any other authority on the subject, hence the book is most reliable, valuable and thoroughly modern; it richly deserves the greatest praise from all physicians interested in this great special field of general practice. J. R. B.

Roentgen Rays: and Electro-Therapeutics: with a Chapter on Radium and Phototherapy. By Mihran Krikon Kassabian, M. D., Director of the Roentgen Ray Laboratory of Philadelphia Hospital. J. B. Lippincott Co., Philadelphia.

A study of this work will give one a good working knowledge of electricity in its therapeutic uses.

The author begins with the "Elementary Principles of Electricity and Magnetism." He treats of faradic and galvanic electricity, the uses of static machines, x ray coils and high frequency currents, of the methods of producing the x ray and its application as a diagnostic and therapeutic agent. His style is lucid and can be readily understood. Altogether this work appeals to one as a very valuable contribution to the subject.

International Clinics. Eighteenth Series. Vol. II. J. B. Lippincott Co.

Dr. Edward Turton of Hull, contributes a long article on "Two Years' Experience of Treatment by the Inoculation of Bacterial Vaccines." At first Turton regulated the treatment by means of the opsonic

index. This he soon gave up as too tedious and really unnecessary. In infections by bacillus coli communis good results were obtained, but one is surprised not to find any note made of the very marked reaction generally present soon after the vaccine is injected. No effect was obtained in epidemic cerebro-spinal meningitis. In streptococcic infections the author advises early and frequent injections, at intervals of 2 to 5 days, if any benefit is to be obtained. On the whole Turton's experiences have been favorable.

Drs. Vaillard and Dopton of Paris, discourse on "The Serum Treatment of Bacillary Dysentery." The serum used was obtained from horses inoculated with Shiga's bacillus. As a rule the patients feel better a few hours after the serum is injected; abdominal pain, tenesmus and straining diminish and, except in very grave cases, disappear almost always during the following twenty-four hours. The stools cease to be bloody and rapidly diminish in frequency. Cases of average severity are cut short in 36 to 48 hours.

Dr. J. B. Roberts of Philadelphia, reports some experiences in plastic surgery. Anything which he says on such a subject is well worth attention.

Dr. C. G. Cumston of Boston, in his capacity as surgeon to the Floating Hospital for children, has much experience in many rare conditions. He contradicts the received notion that the fatty capsule does not exist in children. It is more developed in girls than in boys and consequently perinephric abscesses are more common in the female. The fatty capsule is best developed at the upper and especially at the lower renal region.

Dr. Cumston's paper on Perinephric Abscess in Children is most interesting and instructive.

P. Lockhart Mummery of London, discusses "The Symptoms and Diagnosis of Cancer of the Large Intestine." This is a favorite subject with Mummery and his experience is large.

On the whole Vol. II. Eighteenth Series, International Clinics, is good. J. F. B.

NEW EDITION OF GRAY'S ANATOMY.

GRAY'S ANATOMY has maintained a leading rank in its own field since its original publication fifty years ago and hundreds of thousands of copies have started students at the beginning of their course in medicine. The announcement of a new edition of "Gray" is therefore of primary importance to everyone concerned with medicine, whatever be his stage or station in medical life.

This new edition, soon to appear, is the result of a thorough revision begun two years ago. In this work, Professors J. Chalmers Da Costa and Edward Anthony Spitzka, who occupy, respectively, the chairs of Surgery and of Anatomy in the Jefferson Medical College of Philadelphia, have been associated. Dr. Spitzka has rewritten what has heretofore been the most complex and difficult portion of anatomy, the Nerve System, illustrating it with seventy of his own drawings, so that that subject of recently revolutionized development is at once brought to date and simplified. The possessor of the new "Gray" will have the best issue in which this superb book has ever appeared.

MISSOURI STATE MEDICAL ASSOCIATION.

Next Annual Meeting, Jefferson City, May 18, 19, 20, 1909

President: A. R. KIEFFER, St. Louis.

Vice Presidents:

D. B. FARNSWORTH, Springfield; W. J. FRICK, Kansas City; J. B. NORMAN, California; C. H. DIXON, Holliday; M. A. SMITH, Gallatin.

Secretary: A. W. McALESTER, Jr., Kansas City.

Assistant Secretaries: WILLARD BARTLETT, St. Louis; W. R. PATTERSON, Tipton; T. McLEMORE, Nevada.

Treasurer: J. FRANKLIN WELCH, Salisbury.

Medical Section.

Chairman: E. E. GILMORE, Adrian. Secretary: W. R. PATTERSON, Tipton.

Surgical Section.

Chairman: PAUL Y. TUPPER, St. Louis. Secretary, WILLARD BARTLETT, St. Louis.

Eye, Ear, Nose and Throat Section.

Chairman: J. H. THOMPSON, Kansas City. Secretary, T. McLEMORE, Nevada.

ORATORS.

Oration on Medicine:

R. H. GOODIER, Hannibal.

Oration on Surgery:

F. J. LUTZ, St. Louis.

COMMITTEES.

Committee on Scientific Work.

E. E. Gilmore, W. R. Patterson, Paul Y. Tupper, Willard Bartlett, J. H. Thompson, T. McLemore.

Publication Committee.

W. B. Dorsett, Chairman; M. B. Clopton, M. C. Shelton.

Committee on Public Policy and Legislation.

H. E. Pearse, Chairman; R. M. Funkhouser, F. R. Newberry.

Defense Committee.

F. J. Lutz, Chairman; W. B. Dorsett, Joseph Grindon.

Committee on Medical Education.

B. M. Hypes, Chairman; C. M. Jackson, O. B. Campbell.

Committee on Tuberculosis.

E. W. Schauffler, Chairman; Geo. Homan, J. R. Lemen, W. E. McKinley, J. R. Boyd.

Missouri Society of Medical Secretaries.

President, Foster W. Burke, Laclede; First Vice-President, M. A. Smith, Gallatin; Secretary-Treasurer, Chas. Wood Fassett. St. Joseph.

COUNCILLOR DISTRICTS AND COUNTIES IN EACH DISTRICT.*

F. J. LUTZ, St. Louis, Chairman. E. J. GOODWIN, St. Louis, Secretary.

First District.—Councillor, C. L. Evans, Oregon. Counties: Holt, Atchison, Nodaway.

Second District.—Councillor, W. T. Elam, St. Joseph. Counties: Buchanan, Andrew.

Third District.—Councillor, G. W. Whitely, Albany. Counties: Harrison, Worth, Gentry, DeKalb.

Fourth District.—Councillor, C. R. Buren, Princeton. Counties: Grundy, Sullivan, Mercer, Putnam.

Fifth District.—Councillor, E. E. Parrish, Memphis. Counties: Clark, Scotland, Schuyler.

Sixth District.—Councillor, H. Jurgens, Edina. Counties: Adair, Knox, Lewis.

Seventh District.—Councillor, L. W. Dallas, Hunnewell. Counties: Shelby, Marion, Ralls.

Eighth District.—Councillor, W. B. Dorsett, St. Louis. Counties: Lincoln, St. Charles, St. Louis, Pike.

Ninth District.—Councillor, A. R. McComas, Sturgeon. Counties: Audrain, Boone, Howard, Callaway, Warren, **Montgomery.**

Tenth District.—Councillor C. W. Reagan Macon. Counties: Macon, Randolph, Monroe.

Eleventh District.—Councillor, J. D. Brummall, Salisbury. Counties: Chariton, Carroll, Livingston, Linn.

Twelfth District.—Councillor, E. H. Miller, Liberty. Counties: Platte, Clay, Ray, Clinton, Caldwell, Daviess.

Thirteenth District.—Councillor, F. E. Murphy, Kansas City. County, Jackson.

Fourteenth District.—Councillor, C. T. Ryland, Lexington. Counties: Lafayette, Saline, Cooper.

Fifteenth District.—Councillor, M. P. Overholser, Harrisonville. Counties: Cass, Johnson.

Sixteenth District.—Councillor, J. R. Buchanan, Nevada. Counties: Bates, Vernon, Barton.

Seventeenth District.—Councillor, R. D. Haire, Clinton. Counties: Pettis, Henry, Benton, St. Clair, **Hickory.**

Eighteenth District.—Councillor, Frank DeVilbiss, Eugene. Counties: Miller, Moniteau, Morgan, Camden.

Nineteenth District.—Councillor, G. Ettmueller, Jefferson City. Counties: Cole, Osage, Maries, Gasconade.

Twentieth District.—Councillor, F. J. Lutz, St. Louis. Counties: Franklin, St. Louis City.

Twenty-first District.—Councillor, G. M. Rutledge, Ste. Genevieve. Counties: Jefferson, Ste. Genevieve, Perry.

Twenty-second District.—Councillor, F. R. Newberry, Fredericktown. Counties: Scott, Madison, Cape Girardeau, Mississippi, **Bollinger.**

Twenty-third District.—Councillor, T. C. Allen, Bernie. Counties: Stoddard, Dunklin, Pemiscot, New Madrid.

Twenty-fourth District.—Councillor, T. W. Cotton, Van Buren. Counties: Wayne, Ripley, Butler, Carter.

Twenty-fifth District.—Councillor Frank Harrison, Farmington. Counties: Washington, Reynolds, Iron, St. Francois.

Twenty-sixth District.—Councillor, R. L. Johnson, Rolla. Counties: Crawford, Phelps, Pulaski, Laclede, Dent, **Dallas.**

Twenty-seventh District.—Councillor, H. C. Shuttee, West Plains. Counties: Howell, Shannon, **Ozark, Oregon, Texas, Wright, Douglas.**

Twenty-eighth District.—Councillor, T. A. Coffelt, Springfield. Counties: Greene, Lawrence, Barry, Stone, Christian, Webster, Polk, Taney.

Twenty-ninth District.—Councillor, A. R. Snyder, Joplin. Counties: McDonald, Newton, Jasper, Cedar, **Dade.**

***Counties in black are not organized.**

Societies in Affiliation with the State Medical Association.

County.	President.	Address of President.	Secretary.	Address of Sec'y.
Adair	J. S. Gashwiler	Novinger	E. C. Grim	Kirksville.
Andrew	John Husher	Rosendale	B. E. Miles	Fillmore.
Atchison	E. A. Lewis	Rockport	A. McMichael	Rockport.
Audrain	W. W. McFarlane	Mexico	C. A. Rothwell	Mexico.
Barry	Wm. M. West	Monett	D. L. Mitchell	Cassville.
Barton	A. B. Stone	Lamar	C. F. Brown	Lamar.
Bates	H. A. Rhodes	Foster	E. N. Chastain	Butler.
Benton	E. L. Rhodes	Lincoln	W. S. Jones	Lincoln.
Boone	W. A. Norris	Columbia	A. W. Kampschmidt	Columbia.
Buchanan	H. S. Forgrave	St. Joseph	Chas. W. Fassett	St. Joseph.
Butler	Victor Cadwell	Poplar Bluff	A. R. Rowe	Poplar Bluff.
Caldwell	C. O. Dewey	Breckenridge	Tinsley Brown	Hamilton.
Callaway	H. I. Owen	Fulton	Martin Yates	Fulton.
Camden	G. M. Moore	Linn Creek	G. T. Myers	Macks Creek.
Cape Girardeau	R. F. Wichterich	Cape Girardeau	E. H. G. Wilson	Cape Girardeau.
Carroll	W. C. Baird	Bogard	R. F. Cook	Carrollton.
Carter-Shannon	Wm. Fulton	Winona	J. A. Chilton	Van Buren.
Cass	G. M. Anderson	Pleasant Hill	R. P. Yeagle	Pleasant Hill.
Cedar	Kimball Hill	El Dorado Springs	J. W. Dawson	El Dorado Springs.
Chariton	C. H. Temple	Rockford	C. A. Jennings	Salisbury.
Christian	J. C. Young	Ozark	J. A. Roberson	Ozark.
Clark	R. G. Callihan	Luray	Frank B. Hiller	Kahoka.
Clay	C. H. Suddarth	Smithville	F. H. Matthews	Liberty.
Clinton	John Sturgis	Perrin	E. A. Colley	Plattsburg.
Cole	W. A. Clark	Jefferson City	S. V. Bedford	Jefferson City.
Cooper	R. L. Evans	Boonville	J. R. Lionberger	Boonville.
Crawford	W. A. Metcalf	Steelville	A. H. Horn	Steelville.
Daviess	W. L. Broslus	Gallatin	M. A. Smith	Gallatin.
DeKalb	E. T. Stroup	Weatherby	R. A. Evans	Amity.
Dent	A. F. McMurtrey	Salem	W. E. Rudd	Salem.
Dunklin	N. F. Kelley	Kennett	Paul Baldwin	Kennett.
Franklin	J. P. Dunigan	Sullivan	A. C. Brown	Moselle.
Gasconade-Maries-Osage	J. J. Radamacher	Meta	J. D. Seba	Bland.
Gentry	J. U. Barger	Darlington	Benj. Davis, Jr	Albany.
Greene	T. A. Coffelt	Springfield	J. L. Ormsbee	Springfield
Grundy	Samuel Sheldon	Trenton	E. A. Duffy	Trenton.
Harrison	W. H. Wiley	Ridgeway	J. H. Morroway	Ridgeway.
Henry	J. R. Hampton	Clinton	F. M. Douglass	Clinton.
Holt	F. E. Bullock	Forest City	J. F. Chandler	Forest City.
Howard	J. Y. Hume	Armstrong	C. W. Watts	Fayette.
Howell	J. C. B. Davis	Willow Springs	A. H. Thornburgh	West Plains.
Iron	Ira A. Marshall	Ironton	G. W. Farrar	Ironton.
Jackson	C. B. Hardin	Kansas City	E. L. Stewart	Kansas City.
Jasper	J. W. Clark	Carterville	R. M. James	Joplin.
Jefferson	G. W. Tidwell	DeSoto	R. E. Donnell	DeSoto.
Johnson	W. G. Thompson	Holden	E. H. Gilbert	Warrensburg.
Knox	J. R. Northcutt	Knox City	A. R. Wilsey	Hurdland.
Laclede	W. C. Lockwood	Conway	J. A. Pinckard	Lebanon.
Lafayette	Lewis Carthrae	Corder	C. T. Ryland	Lexington.
Lawrence-Stone	D. M. Huffman	Crane	C. W. Shelton	Mt. Vernon.
Lewis	J. C. Brown	Lewistown	Paul F. Cole	Steffenville.
Lincoln	S. R. McKay	Troy	Wm. P. Smith	Troy.
Linn	J. T. Polson	Laclede	Foster W. Burke	Laclede.
Livingston	H. M. Grace	Chillicothe	J. C. Shelton	Chillicothe.
McDonald	E. F. Doty	Anderson	M. L. Sellers	Anderson.
Macon	W. H. Miller	Macon	F. B. Dailey	Keota.
Madison	S. C. Slaughter	Fredericktown	J. K. Smith	Fredericktown.
Marion	F. W. Bush	Hannibal	H. L. Banks	Hannibal.
Mercer	H. P. Chesmore	Princeton	C. R. Buren	Princeton.
Miller	J. L. Gilleland	Olean	W. L. Allee	Eldon.
Mississippi	R. K. Ogilvie	Charleston	S. P. Martin	East Prairie.
Moniteau	H. V. Thorpe	Jamestown	W. R. Patterson	Tipton.
Monroe	C. H. Dixon	Holliday	W. T. Bell	Stoutsville.
Morgan	P. G. Woods	Versailles	H. N. Lutman	Versailles.
New Madrid	Welton O'Bannon	New Madrid	C. W. Watson	New Madrid.
Newton	R. L. Wills	Neosho	Horace Bowers	Neosho.
Nodaway	L. E. Dean	Maryville	C. E. Fronk	Maryville.
Pemiscot	J. G. Luten	Caruthersville	John Johnson	Hayti.
Perry	T. M. Hudson	Perryville	F. M. Vessells	Perryville.
Pettis	C. Bohling	Sedalia	Frank R. Morley	Sedalia.
Phelps	W. S. Smith	Rolla	S. L. Baysinger	Rolla.
Pike	R. L. Pollard	Eolia	R. G. Hereford	Louisiana.
Platte	W. D. Swaney	Linkville	F. M. Shafer	Edgerton.
Polk	J. E. Loafman	Bolivar	J. F. Roberts	Bolivar.
Pulaski	W. L. Ragan	Richland	E. A. Oliver	Richland.
Putnam	C. H. Carryer	Unionville	J. A. Townsend	Unionville.
Ralls	Fred Walter	Perry	T. J. Downing	New London.
Randolph	G. O. Cuppaidge	Moberly	T. D. Mangus	Moberly.
Ray	R. L. Hamilton	Richmond	H. S. Major	Hardin.
Reynolds	J. M. Lowrey	Centerville	T. W. Chilton	Corridon.
Ripley	S. A. Proctor	Doniphan	J. F. Redwine	Doniphan.
Saline	D. C. Gore	Marshall	A. E. Gore	Marshall.
St. Charles	J. R. Mudd	St. Charles	B. K. Stumberg	St. Charles.
St. Clair	R. J. Smith	Johnson City	Ruth Seevers	Osceola.
St. Francois	T. L. Haney	Farmington	R. Applebery	Leadwood.
Ste. Genevieve	F. E. Hinch	Ste. Genevieve	R. W. Lanning	Ste. Genevieve.
St. Louis	H. Tuholske	465 N. Taylor	C. E. Burford	955 Hamilton Av.
St. Louis Co	C. A. Dunnavant	Kirkwood	W. H. Townsend	Maplewood.
Schuyler	E. L. Mitchell	Lancaster	H. E. Gerwig	Downing.
Scotland	W. E. H. Bondurant	Memphis	W. E. Alexander	Memphis.
Scott	W. H. Wescoat	Oran	W. S. Hutton	Fornfelt.
Shelby	J. D. Smith	Shelbina	A. M. Wood	Lentner.
Stoddard	Edward Moore	Bloomfield	John Ashley	Bloomfield.
Sullivan	J. C. Kessinger	Milan	J. S. Montgomery	Milan.
Taney	Chas. W. Burdett	Branson	Elizabeth McIntyre	Branson.
Vernon	J. F. Robinson	Nevada	T. McLemore	Nevada.
Warren	W. J. Alexander	Marthasville	E. A. Fluesmeier	Wright City.
Washington	J. A. Eaton	Belgrade	W. S. Smith	Belgrade.
Wayne	J. P. Sebastain	Patterson	R. J. Owens	Mill Spring.
Webster	H. Highfill	Marshfield	Wm. R. Beatie	Marshfield.
Worth	W. A. Robertson	Denver	J. K. Phipps	Grant City.